

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

A JOURNAL
 DEVOTED
 TO BEES
 AND MONEY
 AND HOME
 INTERESTS.

ILLUSTRATED
 SEMI-MONTHLY
 PUBLISHED BY A. I. ROOT.
 \$1.00 PER YEAR MEDINA OHIO

Vol. XXII.

NOV. 15, 1894.

No. 22.

FROM DR. C. C. MILLER.

SOME NICE MEN use tobacco. If they didn't use it they would be nicer.

EVERY FARMER'S BOY who wants to go to the city ought to read page 848.

AN ADVERTISEMENT. This is to give notice that I have no honey to sell.

THAT PHOTOGRAPH of bee-keepers taken by Hutchinson at St. Jo is a gem.

WHEN BEGINS the bee-year proper? Certainly not with Jan. 1. Is it October, November, or when?

HONEY IMPORTED in the British Isles in 1891 to the value of \$172,000; 1892, \$318,000; 1893, \$145,000.—B. B. J.

HAULED HOME last bees from out apiaries Nov. 3. [I supposed your climate would require earlier hauling.—ED.]

GLOSSOMETERS, or instruments for measuring bees' tongues, are being worked up by the French. Some are quite complicated.

TURNIP-PATCHES and greenhouses must be scarce about St. Joseph. A. I. Root wasn't absent from a single session of the convention.

DREARY WINTER is coming, and I wouldn't be without a growing plant in the window, even if I could get nothing better than a turnip.

DANDELIONS have sent out a third swarm this season. Oct. 25 the blossoms were as thick in my pasture as in spring, and bees were quite busy on them.

GRAVENHORST thinks that, instead of only a few laying workers being in a colony, the majority of them become such. [I am inclined to think he is right.—ED.]

TOOTH-WASH. Put 8 or 10 drops of carbolic acid in a glass of water. Wet your brush and rinse your mouth with it, and see how sweet it will leave your mouth.

WHEN I READ on page 848 about 200 families living in one house, my wife said, with a look half of awe on her face, "We've lots of room!"

NOV. 5, BEES that had been hauled home Nov. 3 flew at 40°, while those of the home apiary remained quiet in their hives. The hauling made a flight necessary.

ABBE BAFFERT, in *L'Apiculteur*, says that, when a cloud comes up, bees at a distance hurry home, while those near by keep on at work. Cunning creatures!

HENRY W. BRICE, *B. B. J.*, in queen-rearing, uses wax cups on the Doolittle plan; but before putting larvæ in them he submits them to the bees for 24 hours to see if they accept them.

SO YOU'RE GOING to send out top-bars $\frac{3}{8}$ thick in 1895. Sorry. I'm afraid they're not so good as $\frac{1}{2}$. [Practically, I think you will see but little if any difference should you try them on a larger scale.—ED.]

HUTCHINSON, in *A. B. J.*, objects to having the time of a convention taken up with essays that could just as well be read in the bee-journals. He's had a spirit-level on his head. [Yes, I think so too.—ED.]

IN MOVING BEES short distances, Abbe Baffert found them troubled by a removal of 20 inches the first day, but after that they seemed to learn the trick, and found the hive sooner although moved farther.

THE HATCH-ROOT controversy seems to be shifting in this direction: Will bees do as well in two stories as with the same amount of room in one story? [Yes, let that phase of it be discussed. It is important. See Mr. Gill's article, this issue.—ED.]

FRIEND ANTHONY, where did you get the idea that I want a thick top-bar "for the bees to wipe their feet on"? I'm not anxious about their feet; it's their jaws I want to stop from carrying black wax up into the super.

A BIG POINT in favor of the Higginsville cover is the thin edge. It will not curl up as does the $\frac{3}{8}$ thickness. Then it can hardly twist like

a single board. [Yes, one board will help to offset the naughtiness of the other.—Ed.]

ROBBERS. That way of fighting them, mentioned on p. 825, I've practiced successfully for years, using grass, hay, or straw. But don't use half-way measures. Pile up to the top of the hive, and then pour on water by the pailful, and keep it poured on.

ONE REASON, perhaps, that queens went up and down from one story to another for me more than for C. A. Hatch was, that I had $\frac{3}{4}$ inch of burr-combs and honey between the two stories. [I had thick-top frames and no burr-combs, and the queen went up "all 'e samee."—Ed.]

LAYING WORKERS, according to Herr Duerr, in Gravenhorst's *Bienenzeitung*, come about in this way: When the colony becomes queenless, the nurse-bees, having nothing to feed, have themselves the benefit of the extra nourishment they would have fed to larvæ, and thus are stimulated to laying.

IN GERMANY, beginners applying to the secretary of the Schleswig-Holstein Association can have a suitable person sent to instruct and assist in putting bees in winter quarters or in taking them out. Charges, 12 $\frac{1}{2}$ cents for an apiary, or 2 $\frac{1}{2}$ cents per colony if there are more than five colonies in the apiary.

THOSE SMALL FRAMES mentioned on page 789 were certainly not very small—about 2 ft. square—but it should have read "6 square decimeters," or something like 9x10 inches. "Six decimeters carrés" is not "six decimeters square," but "six square decimeters."—[You are doubtless right, but we had no way of knowing any thing about it aside from what Mr. Norman wrote.—Ed.]

"WEEDS AND THINGS" is my "best holt," Ernest. I lose less money on them than on any other crop I can put in, aside from their use to "mark the locality." See p. 833. [Your yard was no worse in point of weeds than the yards of most bee-keepers I have visited. The fact is, many of them furnish either pollen or a little honey. Sweet clover grows rank and thick about most bee-keepers' homes. But, say, the way that small boy "marked your locality" was a joke too good to keep.—Ed.]

IN RUSSIA, Tseselsky reports the average consumption of honey from Nov. 15th to April 1st thus: In single-wall hives, 11.68 lbs.; in double-wall hives, 8.93 lbs.; in a cave with temperature varying from 33 to 50°, 4.63 lbs.; in a dark room kept steadily at 64°, 4.56 lbs.; buried in the earth, temperature 46°, 4.52 lbs. This was in a mild winter, the thermometer never going below 3° above 0, Fahr. I've always thought of Russian winters as colder than that. [Here indeed are some valuable data. They are not far from right, because they agree essentially with some experiments in this country.—Ed.]

Our Symposium.

LARGE OR SMALL HIVES.

The Effect of Locality, Season, and Size of Colony; The Hives that Averaged those Barrels of Honey in Florida; Misconceptions Corrected, and a Little Pepper and Salt thrown in; Tendency of Swarming in Small Hives; Valuable Testimony from Some of the Brightest and Most Extensive Honey-Producers in the World.

THAT "SWEETENED WATER;" EIGHT-FRAME HIVES THREE STORIES HIGH PREFERRED TO THE TEN-FRAME TWO-STORY.

By H. W. Mitchell.

In GLEANINGS for Oct. 15 I find an interesting article by A. F. Brown, giving statistics of the honey crop in this location that are, in the main, correct. But he makes a grave charge when he states that "some harvested sweetened water instead of good No. 1 honey—noticeably those who had secured the big yields."

Friend Brown would certainly not publish a charge of such import unless he were absolutely sure of his facts; so, as one of the bee-keepers who must plead guilty to having a "big yield" this season I call on him for facts and names; and even if it works injury to one or two bee-keepers, that surely would be the lesser of two evils; for, as the statement now stands, it will injure every bee-keeper in this section (excepting Mr. Brown, whose honey is presumably good No. 1), inasmuch as it will injure the sale of their product; for no buyer can be certain that he is not dealing with one of the bee-keepers who have been putting up "sweetened water." "Those who secured the big yields" is rather too sweeping a classification; for if, as Mr. Brown asserts, "200 lbs. would be about the correct average," then about all the bee-keepers mentioned in his article would come under the head of "big yields," for they obtained considerably more than the "correct average."

I am inclined to think that friend Brown has either gone too far in what he states, or not far enough.

In footnote on page 794, you express a desire to know more in regard to the size of hive used, etc. I use the eight-frame Dovetailed hive, three stories high, exclusively, in my own apiary. For several years I used the two-story ten-frame hive, but greatly prefer the eight-frame three stories high, as it enables me to gain all the advantages of a large hive without having to do any heavy lifting. I use seven frames in the two upper stories, for extracting from, and practice tiering up to thoroughly ripen my honey; at the same time I give the bees plenty of room to store.

I extract from the upper story, then lift up the second one, and place the extracted one underneath. This placing of seven empty combs right in the middle of hive seems to in-

cite the bees to do their best to fill that empty space; for the way they will pile the honey in there is astonishing. In the meantime the full combs in the upper story, being in the warmest part of the hive, are thoroughly ripened and capped over ready for extracting by the time the second story is full enough to be lifted up. I claim by this method to obtain more well-ripened honey than would be possible with a two-story hive.

Equally good results could be obtained with the ten-frame hive worked in the same manner, but it is too heavy to handle; but I find I can handle the eight-frame body, with seven frames of honey, without any great muscular effort, although I am any thing but a Hercules.

Having three stories entails some extra handling to lift the second story off, put the empty one in place, and the full one on top again; but to offset that, a little smoke puffed into a third story of capped honey depopulates it of bees to such an extent that the brushing-off is a small matter compared to the same operation with a two-story hive. Then there is less trouble with swarming, less hanging out, and making increase is as easy as falling off a log. I merely lift off the third story, see that it has a frame of brood in all stages; move the two lower stories to a new location, leaving the single story in the old. The bees already on the combs, reinforced by the field-bees, give me a strong colony that never fails to raise a good lot of queen-cells.

In extracting I run honey from the extractor through cheese-cloth into a large tank holding about 1600 lbs., where it stays until I need more room, when I draw it off from the bottom into barrels, for shipment. I have used the two-frame Cowan the past season, and like it better than any other extractor I ever used.

Hawk's Park, Fla.

[Immediately on receipt of this I forwarded it to friend Brown, stating that I was sure he did not intend to convey a wrong impression, and thus do any one of his bee-keeping friends an injustice; that I should be glad to have him reply for print; adding that I was sure there must be some mistake or slip of the pen. His answer will fully exonerate him in the eyes of his friends.—Ed.]

THAT "SWEETENED-WATER" HONEY IN ITS APPLICATION—A SLIP OF THE PEN.

By A. F. Brown.

Friend Root:—Certainly a reply and explanation is due from me in correcting the wrong impression and injustice my recent article seemed to give as it reads therein. I assure you I was quite surprised myself when my eyes reached the two paragraphs in question, and I at once wrote you, on the 23d of Oct., correcting the two errors, and also replying, in a measure, to your footnote. Evidently you have not re-

ceived my letter, and I will again restate the errors. They are, first, in fourth paragraph, seventh line. It should read "two-story ten-frame hive," and not "three-story," as given. Again, in fifth paragraph, sixth line, it should read, "With some of those," etc., and not "with those." The words "some of" apply quite a different reading to the paragraph.

I write very rapidly, and no doubt the error and omission are errors of mine. I certainly would not knowingly do an injustice to any one; on the contrary. I try to give all full measure and credit, and in the case of Mr. Mitchell, who happens to be the man who produced the largest yield per colony, I can not do less than to say that no man produces a better grade of honey than he produces under his management, as set forth in his article, and I commend this method to every honey-producer on the East Coast, and I am sure that neither I nor any other man will have any occasion to refer to unripe, thin, and inferior honey, if all would follow out the method of allowing the bees to fully ripen the honey before removing it from the hives.

Mr. W. S. Hart, the second heaviest yielder, wrote me a personal letter, saying he thought I had not done his honey justice. Very true, as the article appeared; but as corrected I believe justice is done to all. Mr. Hart runs his honey through an "evaporator," and reduces it all to a uniform thickness and quality, and nothing can be said against the quality.

There is no need of my setting myself up as a target in the way of repeating or making a list of names, and going into details as to the special qualities of the honey produced by a score or more men. But any one who will attempt to buy up honey from any and all, as I have, will not be long in finding out that there is much honey far below the standard, and which could not be called much less than sweetened water—honey that would not weigh even 10 to 10½ lbs. per gallon.

San Mateo, Fla., Nov. 1.

[The letter of the 23d referred to does not seem to have come to hand, as a search through our office fails to reveal it. A comparison of the original manuscript of the article to which friends Mitchell and Hart refer shows that it was printed according to copy. But such slips of the pen are easily made, and in this case certainly seem pardonable; but so far as I am concerned I am glad in one sense that it was made; for it has been the means of calling forth a couple of very valuable articles that we probably should not have received otherwise. "All is well that ends well."

If a few have been extracting honey little better than "sweetened water, a little caution will do no harm. Mr. Brown did mention the name of one bee-keeper whom he had especially in mind; but we have suppressed the name. He alludes indirectly to some others, but they do not appear to be among the progressive and prominent bee-keepers, and hence all reference to the matter was omitted.—Ed.]

THAT "SWEETENED WATER;" THE SPECIFIC GRAVITY, AND HOW DETERMINED OF FLORIDA HONEY; TWO-STORY TEN-FRAME HIVES; AN ARRAY OF VALUABLE STATISTICS ON FLORIDA DURING THE PAST SEASON.

By W. S. Hart.

After reading Mr. A. F. Brown's letter, on page 796, wherein I find some remarkably sweeping statements that, uncorrected, are calculated to give the world the impression that the greater portion of the honey from this section is but "sweetened water," from being extracted before it should be, and that the majority of the apiarists are either knaves or fools, with Mr. H. W. Mitchell and myself at the head of the procession, I loaded up my biggest gun, metaphorically speaking, with a charge that would pepper that letter, from address to signature, so full of holes that it would not hold oranges if used for a wrapper. This charge would have blackened the face of three pages, at least, of your journal, and was made up of statements of facts and figures and essays on proper size of hives for this section, curing honey, winter stores, migratory bee-keeping, and stimulative feeding—the summing-up of the most valuable lessons learned in 18 years of study, experience, and observation, of exceptionally successful bee-keeping. Having a soft spot in my heart for friend Brown, however, and not desiring to "shoot to kill," I gave him notice that something was going to happen, in consequence of his strictures, so that he might shelter himself and get hurt as little as possible by the fusillade. In reply I got a letter from him, thanking me for the notice.

[Mr. Hart here gave extracts from Mr. Brown's letter; but as it is in substance like what he has written in reply to Mr. Mitchell above I omit it here to avoid repetition.—Ed.]

Well, after getting this letter, which so carefully disclaims all evil intent, and at the same time sets myself and some others partly right, I rolled up my MS., and for the present, at least, its valuable contents is lost to the bee-keeping world. I have not the time to give to the discussion and correspondence that it would call out. I may at some future time give the parts that treat of curing honey, and the secrets of obtaining large crops of extracted, for I am egotist enough to think that they contain methods that, if adopted, would add very largely to the income of many of the apiaries of America, and at the same time furnish as good (or a better) quality of honey.

There are a few points in Mr. Brown's letter, however, that I will touch upon before I leave it.

My orange crop kept my men and myself busy picking, packing, and shipping, almost constantly from Dec. 9, 1893, up to April 14, 1894, except that I was called away about the middle of March, and kept from home a month, at just the time of all others that my bees needed

me. I had been so busy for over four months that my bees had been examined but twice in that time—once by myself and once by a novice at the business. No stimulative feeding was done in April, as is my custom. The result was, I went into the summer flow with about twelve very poor or queenless colonies, 116 in all. I came out of the flow with 116 colonies in fine shape, a little over 41,000 lbs. of honey, and 300 to 400 lbs. of wax, nearly all from cappings, that can not be excelled. This gives me an average, right through, of $353\frac{1}{2}$ lbs. of honey per colony, instead of 344, as Mr. Brown gave it. A colony that has been kept on scales for three years past, but has had no extra attention of any kind, except its weight being often taken, yielded $534\frac{1}{4}$ lbs., carefully weighed. I had considerably more than that from a few hives, and I am satisfied that two or three gave me 600 lbs. each. I am glad to say I tested the specific gravity of this honey with my hygrometer, and Messrs. Brown and Storer's as well, and I have them as well as other witnesses to testify that it tests fully as high as theirs, and ten and twelve degrees, according to kind, higher than the "usual thickness of ordinary extracted honey," as given on page 408 of same issue of GLEANINGS (I think you, Mr. Editor, must have made an error of ten degrees there).

[I find that the scales vary on the different makes of hygrometers. Perhaps yours is a different make, and hence the different readings.—Ed.]

As to extracting twice a week, I will confess that I could not do that, as I am not up to extracting 2500 lbs. of fully capped honey in $4\frac{1}{2}$ hours, even if it is all at hand, and I have an assistant. It takes me $3\frac{1}{2}$ days to make a round of extracting, with one man to help, and I have other business to attend to outside of my apiary. I made one round a week most of the season, but not as often toward the last. My hives are two-story ten-frame, with but nine frames in the top story. I extract only from these nine frames. Mr. Mitchell's eight-frame hives were mostly tiered three high.

Mr. Brown says, in his published letter, "Again, some extracted so close that their bees will regain a good share of it back before they will meet any more coming in." "Others left 50, 75, or 100 lbs. in their hives. All these items figure in and materially change the face of many of the yields."

I hope no one will commit the error of counting me as one among the first. My hives will average now, after the August and September drouth, about 50 lbs., and honey is coming in faster than it is used. Nor do I want to be counted still more foolishly at the other extreme, crowding my queens with a full hive of our choicest white honey while the field-bees mix it with the dark fall crop by tucking the latter into what few available empty cells they can find here and there, or else lie idle for want of room for it. I hardly think Mr. Brown

would leave his hives in this shape either, as he has "migrated" enough to learn the evils of moving bees 75 miles overland, with 75 to 100 lbs. of honey in them.

I give below the statistics of most of the apiaries in the territory covered by this letter, but extending some five miles further north than that covered by Mr. Brown's. These will be found to vary somewhat from those given by him: but they are as correct as careful attention in collecting could make them. It will be seen by these that the narrow strip, nearly all lying between the J., St. A. & I. R. R. and the ocean, with Port Orange on the north and Oak Hill at the south, produced this year about 200 tons of honey.

Cols. in spring.

E. A. Marsh	100	increased to 150	31,560
Tom Adams	70		24,000
E. O. Clinton	78		23,000
Mr. Husky	19		4,000
J. Dial	10		1,863
H. S. Barker			610
E. G. Hewett			4,455
John Olson	38		12,150
C. W. Barber			15,000
O. O. Poppleton			22,000
Mr. Moore	57		12,000
John Abbott			9,200
E. M. Storer	275	2000 lbs. comb honey	42,000
A. F. Brown	198	9000 lbs. comb honey	42,000
W. P. Wilkinson	20		5,200
W. S. Hart	116		41,000
H. W. Mitchell	57		21,500
J. P. Turner	14		1,325
A. S. Brown			200
Chas. Alden			750
R. S. Sheldon			3,250
J. Y. Detwiler	15	increased to 50	2,200
H. Luthge	18		5,000
T. G. Lindberg	6		573
H. H. Robinson	60		12,000
J. B. Case	50	run for honey, many nuclei for queen-breeding.	19,000
P. Johnson	78		16,000
C. Jones	45	300 lbs. comb honey	10,400

Hawk's Park, Fla., Oct. 29.

[We should be very glad to get that article, or one like it, on your method of curing honey, and, incidentally, your ideas on the size and shape of hives.—Ed.]

PROPOLIS FOR WARMTH; FOUNDATION; THE LONG-IDEA HIVE PREFERRED TO ONE OR MORE STORIES OF THE EIGHT-FRAME HIVES; THE LIFTING QUESTION NOT A SERIOUS ONE WITH LARGE HIVES; IMPORTANCE OF A HIVE REGULATED TO THE SEASON AND TO THE COLONY; A COMPARATIVE STUDY OF LARGE AND SMALL HIVES VALUELESS.

By O. O. Poppleton.

The reading of GLEANINGS for October 15 suggests a few notes.

Ask Dr. Miller why, if bees do not propolize for warmth (see Straw on first page), they do so much more of it late in the season, when the weather is growing colder, than early, when it is growing warmer.

I think Mr. Galvin and Dr. M.'s assistant are needlessly alarmed (Straw on page 788), about bees cutting out foundation that is fastened to the bottom-bar; at least, my bees aren't so naughty. Possibly, shape of bottom-bar has

something to do with it. Mine are very narrow— $\frac{1}{8}$ inch.

On p. 794, in your footnotes discussing small vs. large hives, you speak of the fun of handling—that is, lifting 12-frame hives and long single-story hives. Why, bless you, friend R., this very question of lifting the upper stories of hives is why I long ago discarded all forms of double-story hives, and adopted the long single-story hive, such as I use exclusively. Of course, there were other reasons; but that is the principal one why I stick to that style. My general health is so poor that it would be practically impossible for me to handle a fair-sized apiary if I had to handle hives. I doubt whether, in the ordinary management of an apiary, I lift any, certainly not half a dozen, large hives containing bees, combs, and honey, in any one season.

On the same page, Mr. Dayton calls attention to the importance of having the size of brood-nests regulated to the season; and I would add, to the colony. I called the attention of your readers to this point a dozen years ago, while giving a few of the advantages of single over double story hives. It would be a good thing if your readers' attention could be called to that idea quite often by such articles as Mr. Dayton's. Good things will bear a good deal of repetition.

So far as large single-story hives are concerned, I think the latter half of your footnotes on p. 796 do not apply. Except for extra frames of comb, a large single-story hive uses exactly the same number of pieces, covers, division-boards, etc., whether it contains a large or small colony; and there are no extra pieces to store away when necessary to reduce any colony to a small brood-nest.

On the same page Mr. Brown gives partial statistics from the Mosquito Inlet honey-fields which are, I think, fairly correct, and within bounds. In saying a barrel of honey, we usually mean about 400 lbs.; but reports should always be made in something having a fixed and definite value, as pounds or tons.

All who may hear of our large yield of honey this year should understand that the yield has been a phenomenal one—very much so too—and is confined to one or at most a few localities. Not long ago Mr. Hart allowed me to examine his honey-records for nearly 20 years past; and this year's record excels the best of any previous one by about 40 per cent. I do not expect to see another season its equal; but this is pure speculation, of course.

In your footnotes on p. 794 you suggest the study of our reports this year relative to the comparative value of large or small hives. In my opinion such a study would be absolutely valueless, because the other conditions in each apiary have been so different from any others. Thus, four of us, Capt. Webster, Mr. Stover, Mr. Brown, and myself, practice migratory

bee-keeping, and all four of us this year had a lighter yield than did nearly all who kept their bees in the same locality all the time. This differs from our experience during the four preceding seasons. Of course, our yields can not be compared with the stay-at-homes, so far as the influence of certain hives is concerned. A comparison of the yields of us four migratory folks proves nothing in that same line, as no one of us occupied a locality similar to the one occupied by either of the others. Part of the mangrove field was much more congested with bees than were other parts, there being in the immediate vicinity of Hawk's Park some three times as many colonies to the same space as were in other localities. Conditions in each apiary differed from conditions in other apiaries. Thus, one apiary was as large as the owner wanted, and nearly all colonies were old ones, and strong early in the season. Another was the reverse of this, but had all young queens as an offset. Another bee-keeper was sick during part of the early harvest, and was forced to neglect his bees at an important time, etc.

You say you hardly know what is a big record for extracting. While in Cuba we had a native Cuban do our extracting, and his average work was about 250 lbs. per hour. He did all the uncapping, extracting, and cleaning burr-combs off the top of the frames, using a six-frame non-reversible extractor. This is about the same as Mr. Brown did; but I hate to think that a young active American, like Mr. Brown, can equal only one unskilled Cuban in such work.

Potsdam, Fla.

[The record of the Cuban was accomplished with a six-frame non-reversible extractor, while Mr. Brown's was performed with only a two-frame machine. True, it was a *reversible*, but here is the secret of the rapid work. A small machine starts and stops quicker, is easier handled in every way, and when it is made reversible it will equal the work of a six-frame non-reversible and a six-footer Cuban. Mr. Brown is not a large man, and that Cuban was probably his equal if not superior in strength. Therefore I think our American, Brown, really holds the record.]

A comparative study of the sizes of hives may not be entirely satisfactory, but I think some facts may be gleaned nevertheless, and hence I'd like to see an attempt at it. Regarding the Long-idea vs. the two and three story 8-frame hives, let me refer you to the article of M. A. Gill, just following.—Ed.]

THE TIERING-UP PRINCIPLE OF THE EIGHT-FRAME HIVE; THE EIGHT AND TEN FRAME TRIED SIDE BY SIDE, WITH RESULTS IN FAVOR OF THE FORMER, AND WHY.

By M. A. Gill.

What has become of the tiering-up principle of the movable-comb bee-hive? It seems to have become one of the lost arts to at least some bee-keepers, for they have forgotten that they can *tier up* and thus meet the requirements

of an increasing colony, but are taking up the old "long idea" plan, not back of the brood-nest with the Adair or Gallup frame, but off sidewise with the Langstroth frame.

Where one writer suggests from eight to ten, another from ten to twelve, and another suggests fourteen frames, what is it but the old "long idea," and that off sidewise, as though they had forgotten both principles—that of tiering up, and the true long idea. I have not been without both eight and ten frame Langstroth hives side by side for the past ten years; and I must say I decidedly prefer the eight-frame hive for my locality, and I live less than thirty miles from Bro. Hatch; but I am aware that our forage is somewhat different. My surplus comes from basswood, having only three times in eighteen years secured a small crop of clover honey, but nearly always enough to build up on, ready for the basswood flow.

Now, if any ten or twelve frame advocate were in my location, and would agree to use no dummies in the spring, and only one super in the harvest, I think I could convince him that his hive was too large in the spring and *too small* during the harvest. Our spring seasons are usually cold and backward, and bees do not build up fast until after May 20. That leaves us only three weeks to secure our basswood-workers. Like Doolittle, I do not want them any sooner, for there is nothing for them to do but consume; and I have always noticed that a colony whose queen has exhausted herself early in the season comes up to the honey season much behind the colony that has reserved its force until the proper time; and bees in ten-frame hives are not so provident in early breeding, on account of the extra honey the hive will contain. I find that, in any size of hive containing L. frames, after bees have six or seven frames *well* filled with brood, they would *much* rather occupy two frames directly over the seven than one at each side of the seven. Heat rises, as any one can see by watching a burning brush-pile. One will notice, too, that the heat will seem to come to a point at a limited distance, the outside heat being drawn to the center by its intensity. To illustrate, go out some morning when the hives are covered with frost, and look at the size of the melted spot on a one-story, two-story, and three-story hive. My bees, at least, much prefer to economize this heat for breeding-purposes than to warm up more room at the side.

Candidly, it seems to me that eight frames is the "happy medium" between too much and too little; and with that splendid feature added (tiering up), all that could be asked in a beehive is obtained.

Right here I wish to go on record as saying that I do not consider any colony in prime condition for the basswood flow with less than 24 L. frames. Going farther, I know that the same colony will gather as much surplus in five

to six days, when given two sets of comb, as will take it eight days on one set.

Hold on! I have got to fix up the fence a little (not Dr. Miller's), or Bro. Hatch will sharpen this point I have made, and ruthlessly stick me with it by saying, "There, Gill, you are admitting your hive is too small." I plead guilty. It is too small when I want a large hive; but I can tier it up till I need guy-ropes, if necessary; but your hive is too big when I want a small hive, and too small when I want a big hive; for you will certainly admit that it would be no fun lifting off any thing more than one super holding ten frames.

Viola, Wis.

[It is natural for us to indorse the opinions of one whose experience has been in line with our own; and so I agree with friend Gill, because his experience has been mine. I can't understand why friend Hatch should find that queens are loath to enter the top story, especially as he is only 30 miles from you. Then there is E. France, who finds brood in two stories of eight-frame bodies, and he is not much over 100 miles away. About 100 miles south of Mr. Hatch is Mr. Harry Lathrop, a strong advocate of the eight-frame size, and his crop of honey this season was large. I said I couldn't understand why there should be this difference; but upon second thought, ten miles, as we all know, sometimes makes a big difference in the locality.—Ed.]

W. L. COGGSHALL ON EIGHT VS. TEN FRAME HIVES; A FEW INTERESTING FACTS AND FIGURES, IN WHICH THE EIGHT-FRAME COMES OUT A "LEETLE" BIT AHEAD OF THE TEN-FRAME HIVE.

By Harry S. Howe.

During a recent visit to Mr. W. L. Coggsall, the subject of Dr. Miller and the fence came up. At my request, Mr. Coggsall referred to his complete honey-house record to see whether or not he had any thing which would help the doctor down from his seat on the top rail of the eight vs. ten frame fence.

Number.	Name.	Spring count.	Increase.	Full count.	Extracted honey.	Comb honey.	Average extracted.	Style of hive.	Miles from home.	Chaff packed.
1	Smith's	50	18	68	3200		64	Kidder 8	25	
2	Pine Woods	72	23	95	8200	300 (8 cols.)	128 L. 8		40	
3	Varna	90	40	130	8700		95½	L. 8	42	
4	Bacon's	80	15	95	3300	1500 (30 cols.)	66 S. 10		6.50	
5	Ellis	67	11	78	6900		89½	L. 8	15	
6	Lansing	55	17	72	7500		134½	L. 8	9.20	
7	Brown's	50	50	100	6000		120	Eclectic 10	9.50	
8	Etna	34	11	45	1200		33½	L. 8	10.20	
9	Forest Home	42	15	57	4500		107	L. 8	12.20	
Totals		540	150	690	48500	1800				

Just a word here in regard to those records. They consist of pieces of smooth boards, nailed up in each honey-house, on which are written all items of importance regarding the yard as a whole, such as date of unpacking, amount of honey, etc. From the copy of these records kept at home, the above analysis of the re-

sults of the yards is compiled. The yards are numbered in the order in which they were established. The honey is largely buckwheat, and very fine.

From the above table it would seem that location makes more difference than any thing else. The two ten-frame yards averaged 93 lbs. of extracted honey. The seven eight-frame yards averaged 93¼ lbs. This would lead me to think that, so far as extracted honey is concerned, the fence is the place yet awhile.

There are some things not shown by the table, which may have some influence upon the results. The colonies run for extracted in number four were, perhaps, a trifle weaker than those run for comb; but to balance that, is the fact that there was no increase in number seven, as there was no winter loss. In fact, there has not been over one per cent of loss there since the yard was established. Yard number four also seems to winter very nicely. The difference is probably partly due to the difference in location, as there was considerable variation in that respect in yards which were apparently just the same last fall. The yards all received nearly the same attention. There is no home yard and no pet yard to get extra work. Hoffman frames were used in the Eclectic hive.

The conclusion reached by Mr. Coggsall was that, so far as extracted honey is concerned, there is no material difference. They winter slightly better in the ten-frame hives. There are two more combs to handle in each hive to get the same honey in extracting, and the ten-frame hives are not so apt to swarm.

Kings Ferry, N. Y.

[Coggsall's table of figures is interesting and valuable because it is evident that it was not fixed up to prove that either the eight or ten frame was the better size; but it does show pretty clearly that the smaller hive holds its own against the larger. The table shows, also, that it was a no one or two hive record, but one that is made up from over 500 colonies. Coggsall is and has been one of the successful ones. He doesn't write much, but he knows much about getting big crops of honey.—Ed.]

EIGHT AND TEN FRAMES; A COMPARATIVE TEST, WITH THE DIFFERENCE IN FAVOR OF THE LARGE HIVE.

By S. C. Corwin.

Two-story brood eight-frame hives won't work. I started 10 years ago here in Florida, with 25 two-story Simplicity hives, with 7 wide frames for comb honey. A few years after you brought out the T super I made 20 hives, taking 9 frames and a T holding 24 one-pound sections. Soon after, I got 20 hives, 8-frame. I ran these one season for comb honey, using one story and T supers. At the end of the season my crop from those hives convinced me that eight frames was too small. The next season, when the lower story was full of brood, I gave a second

story to enlarge the brood-chamber. I soon found the queens in the upper stories, and later I found that the queens occupied only five or six frames in the lower story, and about the same in the upper. The following spring the queens had left the lower story without brood, and were occupying the upper story, requiring the raising of the lower stories (lots of work), and gave me only 10, or in some cases 11, frames of brood and 5 frames of honey, which should have been in sections. I have got in our apiary, with the same attention, more comb honey from Simplicity hives with 7 wide frames than I have ever got from a two-story eight-frame or nine or eight frame brood-chamber with T supers. I am now running my eight-frame hives three and four story for extracted honey. This is in answer to a footnote, page 794, Oct. 15. Sarasota, Fla., Oct. 24.

[These are facts that we want; but don't stop here—we want more of them. The question of the size of hives is a very important one.—Ed.]

THE TEN FRAME COLONIES AHEAD OF THE EIGHT-FRAME.

I have been using the eight and ten frame hives side by side, half of each. I have kept record for three years, and my ten-frame hives are ahead. Three of my best ten-frame colonies gave me 100 lbs. each this year; three best eight-frame, only 60 lbs. The ten-frames have ten frames full below, and the others only eight. I use half-depth frames on all my hives for extracted honey. I put them on early in the spring, then when well started I raise them up and put sections under. This is the only method by which I can secure any honey. This has been a great year for swarming here, yet I have had only six swarms from 30 colonies by this plan. C. S. NEVINS.

Wagstaff, Kan., Oct. 6.

[This is the kind of evidence we want. It is these comparative tests that are worth bushels of theory.—Ed.]

THAT BIGGEST BEE-KEEPER IN MICHIGAN.

CROP THIS YEAR 20,000 LBS. AND NOT A POOR SEASON IN 18 YEARS.

By B. Walker.

I want to tell you I have been very much interested in the accounts given by the junior editor of GLEANINGS of his visits to some of the leading bee-keepers of our State. I have enjoyed them all the more as they are all personal friends of mine, and none the less if they have not cut much figure as honey-producers of late years.

That description of the biggest sawmill in the State wasn't so bad, either, for a mere boy; but then, big sawmills are so numerous here in Northern Michigan, and big bee-keepers so scarce, that I did not care so much for that; but just the same we have one big bee-keeper

here—the biggest one in the State, if I am correct, who keeps nearly 350 colonies in seven different yards, and who raised over 20,000 lbs. of honey this season, and who has not failed of getting a good crop for 18 years past. This chap lives not far south of Cadillac, at a place called Evart, on the direct route from Flint to Manistee; and as his apiaries are located chiefly at different stations close by the depots, his home yard being but a few rods from the station at Evart, the junior editor no doubt had less trouble in finding him than he did friend Hunt. Of course, I have been waiting with no little impatience for an account of his visit to this man, and a description of some of the apiaries and methods of this biggest bee-keeper—in fact, I can hardly wait for the next number of GLEANINGS.

Evart, Mich., Oct. 24.

[Now look here; you didn't give his name. On our subscription-list we find at that point B. Walker. Is it he? I did not know there was a bee-keeper anywhere in the State who was engaged so extensively in the business. I certainly should have called upon him, as I went right through the place. Well, now, I want to know more about him—anyhow his hive, his methods, and himself.

The writer of the sawmill article was a younger sister (not a boy), who wrote home an account of her visit to the mill, without any expectation that it would be published. When A. I. R. said he wanted it, she protested, but finally consented, with the understanding that her name should be omitted.—Ed.]

ANOTHER TREMENDOUSLY LARGE HONEY-YIELD.

AN AVERAGE OF 750 LBS. PER COLONY FROM 63, SPRING COUNT.

By H. Petersen.

Mr. Root:—Seeing that you mention my large yield of over 1200 lbs. for one hive in a single season, in July 1st GLEANINGS, I will give you my returns for the same season, 1891-'92—a very long and favorable one. Started in spring with 63 colonies; increased to 120, and extracted a little over 48,000 lbs. of honey—an average of 750 lbs. per colony, spring count. This is the highest average record in New South Wales, Australia. Has it been exceeded in any country where GLEANINGS circulates? My bees are Italians and hybrids, in 20-frame "long-idea" hives.

Wattle Flat, N. S. W., Aus., Sept. 8.

[This yield is indeed enormous, and, if I am correct, quite outstrips any other records. The figures, to those of us who have for a series of years had almost failures and small averages of ten and twenty-five pounds, seem incredible; and yet I have learned not to be surprised at anything coming from a reliable source (as in this case) in warm climates, when modern methods and modern intelligence are applied. Now, I am sure there must have been other large yields—perhaps not so large—in your country, and we all of us in this country want to know more about it—the kind of hive used;

frames, etc.—not that we wish to emigrate to that favored paradise for the bee-keeper, but that we like to know what has been and can be done under the most favorable circumstances in the best season, in the most favored locality.

It may be well to mention that Mr. Pender, of Australia, who attended the World's Fair, reported at the North American, which he attended, some very large yields. In the light of these the report above may not seem so impossible of attainment after all, especially when we remember that, in some places in Australia, honey comes in the year round.—ED.]

RAMBLE 120.

IN THE ZACA MOUNTAINS.

By Rambler.

If I were to divide the people of Los Alamos off into squads I would put one-fourth down as Americans, Dutch, etc.; one-fourth Spaniards, and one-half babies. It may seem remarkable that so many babies should be there to make up

over their heads, and then he would laugh and shout, "More babies!" A further look on my part in the opposite direction would reveal another squad and more babies. It is needless to say, that my dreams for several nights were of red mouths, fists, and feet, all in juxtaposition. I could see no sense in Wilder's spitting his hands, and laughing about it, when it was such downright sober business. It was, therefore, a downright relief when Brother Hilton (may his shadow never grow less) proposed that we spend a day or two prospecting the honey capabilities of the Zaca Mountains. Mr. H. aroused our imaginations, and visions of elysian fields of honey-flora floated through our minds; and one morning, soon after the 4th of July, our ponies were attached to Mr. Hilton's wagon, and, with our campe-equipage, guns, etc., we set forth. Our party consisted of Mr. Hilton and his seven-year-old daughter Frances; Mr. Wilder, and myself. The three peaks of the Zaca Moun-



ZACA LAKE.

the population; but when a big Spaniard and his wife present themselves and point with pride to their family of 24 children, and some of these older children married and emulating the example of their parents, the problem is not remarkable. When it became generally known that a photographic outfit was located near our friend the blacksmith we were besieged with much work, and enlivened with the squalls and wry faces of Spanish babies, some black and some white, and some of a mongrel hue. While the Rambler, with tired and befuddled brain, would try to focus the camera on one of the aforesaid urchins, of less than a week's growth, Wilder would catch a glimpse of another squad of dark-skinned women with towels

tains loomed up against the sky in the blue distance, about twenty miles ahead of us. During our journey Mr. H. amused himself by pointing out the various things of interest on the way, and we discoursed fraternally in relation to bee culture and its delights. All along the route, whenever we passed through oak-groves we found the busy bees at work amid their branches in great numbers. We were curious to find out what they could find in oak-trees at that time of the year, and proceeded, as a committee of the whole, to investigate. Our examination revealed the source of honey. The little acorns that were just forming had been stung or punctured by some kind of insect, an egg deposited, a little worm hatched, and a sweet juice exud-

ed from the wound, and this was what the bees were so busily at work upon. As it exuded enough to drop upon the leaves, I suppose the liquid must be called honey-dew, or something akin to it. Mr. H. assured us that the bees gathered much honey from this source, and that it was not of a bad quality. No civilized bees were kept in the wild country through which we were passing. The multitude of bees, therefore, were from the trees and rocks.

The canyon we soon entered, and through which we wound our way, was wild and hemmed in by tall mountains; but not more so, perhaps, than what we had seen in other places, and especially in the Sespe region.

time, however, we reached our destination—Zaca Lake—a fine sheet of water several acres in extent, just under those three peaks, and several thousand feet above the level of the sea. This little lake, perched so high above the surrounding country, is considered a great curiosity in the region, and is becoming quite a summer resort, in spite of the rugged climb to get to it. We found here the lone cabin of a frog-eating Frenchman. I do not say “frog-eating” out of any disrespect to the French, but because Mr. H. said that this man did eat frogs; and the remains of many of the succulent silurian monsters were visible around the cabin. It seemed to be a healthful climate for frogs, ex-



HILTON AND WILDER BRINGING IN THE GAME.

Our load weighed rather heavily upon our ponies; and when we came to the final two-mile grade, about as steep as the roof of a gothic house, we camped for the night. Frances was tucked up warmly in one corner of the tent; Mr. Wilder rolled himself in his blanket, under a tree, while Mr. H. and I sought the remaining corners of the tent.

The next morning, leaving our ponies tethered in a little spot of wild oats, which are plentiful here, we climbed the steep grade. Frances partly climbed and partly clung to her papa; and, on account of the heat, we often rested. In

cept when the Frenchman was around, for we saw some of aldermanic size. A ramble around the lake, a photograph or two, a sail on its placid waters, and a peep into its clear and unfathomed depths, and we were ready to return to camp. Frances enjoyed a ride down on her papa's shoulders, and, owing to the uncertain foothold, we occasionally made ourselves into sleds in an undignified way, much against our wills, and that's the way we and Frances came down.

We found much honey flora that was new to us, and plenty of bees at work. Mr. H. spent a

short time trying to find a bee-tree, but did not succeed, though they must be plentiful here.

Mr. Hilton had been telling me that he knew of a good bee and honey range that would just suit me; and here in this wild spot, with mountains rising upon all sides of us, Mr. H. enthusiastically exclaimed, "Here, Mr. Rambler, is the place for you." It was certainly retired enough, and the bees would have an easy flight to the hives. All they would have to do would be to fold their wings and drop; but the purling stream I was looking for was not large enough, and I told Mr. H. that I would look further.

In the early morning, while Mr. H., Frances, and I, were climbing to the lake, Mr. Wilder went on a deer-hunt, but returned, as usual, empty-handed, saying that he saw only signs. I began to have a downright disrespect for his deer-hunting qualities; and he had come in so many times from an arduous early-morning climb, with his signs story, that I had a private smile up my sleeve every time.

We concluded that the journey for our ponies would be much easier if we moved our camp toward the mouth of the canyon, and we accordingly traveled down several miles and camped again under one of those noble broad-spreading live-oaks. Mr. Wilder rolled himself in his blanket again, and slept under the wagon, while the rest of us sought the tent. In the "wee sma' hours" of the night the sharp report of a rifle aroused us, and, upon inquiry, Mr. Wilder informed us that a fox had tried to appropriate our provisions. The fox escaped, and left the usual "signs" of being around.

Mr. Wilder's mind, however, on deer was bent; and ere the morning gray had streaked the east, a hasty morsel of food he snatched, and was away to the mountains. Mr. Hilton, Frances, and the rest of us, arose when so inclined, and prepared our breakfast of good things. While we were stowing it away we heard the sharp report of the rifle, far up the mountain. Soon another bang, then another.

"Signs of deer," said I, with a sardonic grin.

"Yes," said Mr. H., "signs of deer."

In the course of an hour Mr. Wilder returned to camp, calm and collected.

"Signs of deer?" said I.

"Yes," said he, "signs of deer."

He sat down and filled the inner man, and then invited us to help him bring in his game—a deer.

"Why, Wilder, you're joking. It was only signs, wasn't it?"

"Mr. Rambler," said he, "it is a deer this time."

I believed him immediately, for he said it with a sort of George Washington I-can't-lie manner that carried conviction. Mr. H. and I followed him about half a mile up the canyon, and there was the defunct deer, sure enough. My sardonic smile up the sleeve did not fit that morning, and I threw it away, and have not in-

dulged in one since. The deer was duly photographed, and all parties concerned are true to life. It was duly dressed, and taken to town; and for several days we lived on venison. My partner rose several degrees, as a deer-hunter, in the estimation of Mr. H. and the Rambler.

CALIFORNIA ECHOES.

By Rambler.

Mr. J. Hilton, of Los Alamos, has an apiary for sale. He also mentions Spanish señoritas. Please excuse the Rambler, Mr. Hilton. I will turn the field over to some gushing tenderfoot. Those señoritas are very pretty, though.

Which have the longest tongues—Carniolans or Italians? Mr. Wilder says the Italians have. His experience is first-class, for he has had more picture talk with Italian women than any other person of my acquaintance. Their tongues were always too much for him.

"The bees of Brazil hang their combs outside on branches of trees, at the very summit, and at the ends of slender twigs, to be out of the way of monkeys, which are very fond of honey." The above is a clear case of education in the race of bees, where some claim there is none.

There is also a good round story about a Florida colony securing 550 lbs. of honey in one season. I believe it. But when we hear that a colony has produced 1000 lbs. in one season, our credulity is stretched as tight as a fiddle-string. If the fellow had added just one pound more I would have jumped up and shouted, "It's a lie."

The California woodpecker may be called an educated bird. He first drills a hole in the bark of a tree, large enough to accommodate an acorn. He then gets his acorn, always a defective one, or one in which is an embryo grub, and inserts it in the hole. In due time the grub becomes a luscious morsel, and the woodpecker is on hand for his feast.

Now, editor Ernest, when you are out on a wheel again, and want to find Bell Branch or the other town, don't inquire of a dude hotel clerk. They know but little outside the four walls of their little office. Just ask my friend the blacksmith. He will set you right every time. The next best place is a livery-stable keeper. Here in California my friend the blacksmith is posted on roads for a hundred miles in all directions.

A writer in the *A. B. J.* says bees get fat and lazy, and that, too, during a dearth of honey. A California man told me that his bees become poor, scrawny, and lazy, just like his cattle, when the feed was short. The latter doctor, whose opinion is opposed to the former, could neither read nor write. His wife was obliged

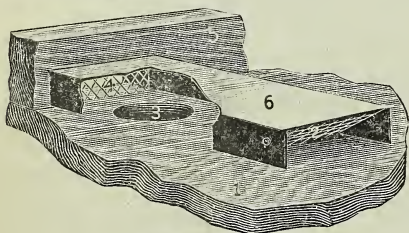
to help him in those accomplishments. I put but little faith in his assertion, and in like manner whether the *A. B. J.* correspondent does his writing himself or by proxy. I don't believe his assertion. I don't believe bees ever get fat or poor.

THE STAMPEDE BEE-ESCAPE.

By C. W. Dayton.

[The following is from the *Bee-keepers' Review* for September. My own comments appear at the end.—Ed.]

Friend H.—I send you by this mail a model of my bee-escape. No. 1 is a section of the escape-board proper. No. 2 is a gate of wire cloth hinged at its upper edge, and under which the bees pass in their efforts to reach the opening (4), toward which they are drawn by the light coming in. By the time they reach the screen through which the light comes, they discover a more satisfactory route (No. 3) to the brood-nest. No. 5 is the raised rim around the escape-board. No. 6 is the escape proper, made of tin, a portion of which is cut away to show openings 3 and 4.



THE STAMPEDE BEE-ESCAPE.

The escape rests on the top side of the escape-board, instead of being let down into it. This renders the screened window discernible from all points of the board, however distant. In my experiments I have found that they go through the escape rather than an open outside exit. In the case of an outside exit the first uneasy bees, after coming to the outside, return inside again, and it is not until they become *very* uneasy that they dare take wing or course down to the entrance on the outside surface of super and hive. The first attempt to reach the window results in such bee being *trapped* out of the super, and obliged to proceed toward the brood-chamber. Thus in this escape it is trap first and straggle passage afterward, instead of strange passage first and trap last. After securing it to the board, adjust the points of wires so as to nearly admit a bee by bending a wire, at the rear part of the gate, against the roof. As the floor is uneven it makes no difference if returning bees climb on top of the gate. I have cleared 200 supers this season with this escape.

Having the exit partially open is the turning-point in the success or failure of all escapes, and in the neglect of which many cast escapes aside. If you wish the escape to operate very fine, ravel out front lateral wires to within two wires of spindle wire. It requires about as much experience to operate escapes as it does in the spreading of brood. An escape with a window to admit outside light will operate the best from morning until about three or four o'clock in the afternoon. But toward

nightfall, bees will retreat from the light, so that, to do the most rapid work, the exit ought to be farthest from the window. This point was suggested and found true from the hiving of swarms with a lantern or by moonlight. If the empty hive be placed on the moon side, as the bees are placed before it, they do well if they do not leave it entirely and retreat away toward the darkness. Place the hive on the dark side, and they retreat from the moon right into it. So the moon exerts an influence on the hiving of bees, and, possibly, the operation of escapes, so to say.

With the gate at the inside end of inclosed dark passage, robbers will not be caught. This season, even in the height of the harvest, I found a band of robbers prying around supers after the bees went out. I removed the super, but allowed escape and board to remain on the hive. When a robber approached the gate, and, seeing the light at the other end, it thought it had discovered plunder, and instantly jumped under gate. Result, dead robbers dragged out at entrance of hive below.

Oh, yes! my advertisement states that 1000 bees per minute may go through. These are three inches long, a gate on each side of the auger-hole. The capacity of escape I send is 500 to 700. After adjusting escape, spread carbolized cloth (prepared *a la* Woodley) over top of frames, and put cover down upon it. They will stampede.

Florence, Cal.

C. W. DAYTON.

[Mr. Dayton's escape, theoretically, looks like a good one. It combines very nicely the flood-gate principle of the old original that Mr. Poulder introduced some ten or twelve years ago, and the going-toward-the-light idea of the Boardman, also introduced at an early date. The first mentioned consisted of a sort of gate, or rake, the teeth of which were common pins, the whole hinged at the top so that the bees could pass under the pin-points one way but not the other. Mr. Boardman, as some of our readers know, has long used a cone bee-escape; but instead of having it placed *between* the super and brood-chamber, he insists that the proper place is in front of the super on the *outside*, and just over the hive-entrance. The bees go toward the light, pass outdoors, and, if there are any young bees, they will crawl down the hive-front into the entrance. As thus situated, Mr. Boardman claims that it is much more rapid in its operation. In the maintenance of this position he has stood practically alone. But Mr. Dayton, independently and without this knowledge, as I judge, of Boardman's escape, or, rather, its position, has gotten hold of the same idea (toward the light) and so arranged the escape that it lets the bees into the hive. Occasionally robbers, Mr. Boardman says, would bother the outside escapes.

I should like to see reports from others who may have tried the Dayton, as to how fast it works compared to others.—Ed.]

SASSAFRAS AS A VERMIFUGE.

WILL IT KEEP ANTS AWAY FROM HONEY, ETC.?

By A. P. W.

Some years ago I dried a quantity of strawberries in sugar, and, after putting them away with the greatest care, my disgust was extreme when, upon opening them, I found worms here and there among them. At first I regarded the case as hopeless; but having seen it asserted,

over and over again in print, that the bark of sassafras root would keep worms out of dried fruit, and living, at the time, in Southern New Jersey, where sassafras is, to say the least, abundant, I determined to try it. Having carefully picked over the fruit, heated it again in the oven, and divided it into two separate lots, into one I put sassafras bark, mixing it through the fruit here and there; but into the other I did not put any. To all appearances both lots were exactly alike when I put them away as carefully as before. The one with the bark in it remained perfectly free from worms until all used; but the other lot, in a little while, became infested again, and was finally destroyed. Since then I have repeatedly used sassafras bark, and think I am safe in saying that the little moth that lays the eggs from which the worms come will not go where sassafras is.

Now, since I have been a GLEANINGS reader, and have seen so much about the troublesome worms in honey-comb, I have wondered if there could not be a way devised to use it to advantage in protecting comb from the visits of the bee-moth. Since my experiment with the fruit I have come to live where it is not easy to obtain sassafras bark, so I now use the oil, which is cheap, and to be had at all drugstores. I know bees do not dislike the odor of the oil, because, two years ago, we put it on a hive in various places, front and back, to drive out large ants that were troubling one colony, and the bees paid no attention to it. Large ants seem to have a great aversion to it, and I have three times, in the last ten years, routed them from my pantry and kitchen cupboard with it. Little red ants, and small black ones too, flee from it. If the little red ants that are sometimes so troublesome make their appearance, I drop a little sassafras oil on bits of muslin, and lay it wherever they are, and they leave. Cinnamon oil, or ground cinnamon, if it is pure, has the same effect.

THE KINGBIRD A DRONE-EATER.

I was glad to see the note in defense of the kingbird in GLEANINGS for Oct. 1, and your remarks upon it. About a year ago a writer told of killing the kingbirds and redbirds because, as he said, they destroyed his bees, and lived exclusively upon that kind of diet. I had been watching those two kinds of birds for some time, and had failed to see them catch a single bee, even when they had every opportunity; and then, too, I knew that the redbirds were seed-eaters, as we had family after family of them reared in our house yard, where they fed their young on melon-seeds thrown out for them, and on the oats left by my daughter's pet chickens.

[Sassafras may have been before suggested for the riddance of insect pests, but I do not now remember of it. I should be glad to get reports from others who have been similarly annoyed.—ED.]

BEE-PARALYSIS.

A WORSE SCOURGE IN SOME LOCALITIES THAN FOUL BROOD; ALL CURES TRIED. AND ALL A FAILURE; THE ONLY REMEDY WHERE IT IS EPIDEMIC IS COMPLETE DESTRUCTION OF THE WHOLE COLONY.

By T. S. Ford.

The idea that we both had, of killing off the black shiny bees in the hives affected by bee-paralysis, has been thoroughly tried by me this summer, and it has gone the way of the sulphur and the salt, and the requeening and the salicylic acid—the limbo of exploded remedies for this disease. I can not really believe that there is any cure of the disease, except spontaneous ones somehow worked out by nature's own processes, if it can be truthfully asserted that there are cures at all. I have seen some of my colonies, that were decimated in the spring, apparently get well when summer came on; but the shiny bees are now beginning to reappear in them all, even among those requeened with queens from the North, which I once thought could resist the disease.

In the light of what has lately been published as to Cheshire's discovery of the bacillus Gaytoni as being the origin of the malady, it seems doubtful whether there is any hope of cure. I know the infection is borne about on the body of the bee itself, as I have seen an apparently healthy queen from an infected hive carry the disease into an apiary hitherto wholly free from the trouble; and as I have seen the malady spread from an infected hive to all those close by in a short time. Now, foul brood can, it appears, be eliminated, because the bacillus develops only in the larvæ; and when the infected honey and infected combs and hives are gotten rid of, and the bees put into clean hives and on clean combs, the bacilli are all gotten rid of, and the malady eradicated, as appears from what is said of the methods of treatment that have been reported as successful. But reasoning on principle, what is to be expected of a disease propagated by mere contact, and where, after you have transferred the bees to clean combs and clean hives, as I have done, and fed them on sugar syrup for a while, and then transferred them again, yet after all there are the seeds of the disease in the shape of the bacillus lurking in the body of an infected bee or queen, that, under favorable conditions, propagates the infection anew?

It seems that we need the scientist, with his microscope, to take the matter in hand, and hunt the bacillus down thoroughly, and tell us whether the spores of this organism are preserved in the honey, and thus carried into the stomachs of the larvæ; also to let us know whether it lurks in the combs and on the walls of the hives. Then, and not till then, can the disease be treated scientifically.

But, after all, for one I utterly despair of any

means that will exterminate the disease. Beyond all doubt it is infectious. My own experiments have satisfied me that it is infectious, and that the contagion is carried on the body of the insect. Now, granting that it is infectious, how can we get rid of the bacillus by any method short of the destruction of the individual that carries it about, and perhaps of his hive, honey, and combs, if they too contain spores of the bacillus?

Our doctors stop the spread of yellow fever by drawing a cordon of quarantine around the infected city. This being done, they do not physic the whole city at once, nor do they administer remedies to kill the yellow-fever germ in the sick person, because they know that any remedy that will kill the germ will kill the patient. May not this be true in the economy of the hive? We can not quarantine the infected bee against his fellows, of course, nor can we quarantine the infected colony against the robbers from other colonies. which, just at the time when the disease is most virulent, and has overpowered the sick community, rush in and sweep away the poison into their own homes.

The two articles of Mr. Getaz, of Tennessee, published in the *American Bee Journal* this year, and lately reproduced in the *Bee-keepers' Review*, have been read with great interest by me, as showing that bee-paralysis has become endemic in the neighborhood where he lives, doubtless by the very process above indicated. The same thing has happened, it appears, in California, I believe in San Bernardino Co., where it has destroyed thousands of colonies, according to the statement of Rambler, in GLEANINGS. Whatever may be the result of bee-paralysis in the North, it is in this climate a disease that is destructive to all prospects of honey production for profit; and it is my conviction that the only method of dealing with it is to promptly destroy every colony that shows infection, and thus stamp it out.

I have a criticism on the name that has been given to this disease, that I wish to submit. Bee-paralysis seems rather a misnomer to one who sees the disease in its last and most virulent stage, when the sick are seen crawling about with their bellies enormously distended. It looks then more like a dropsy; and when the subject voids an enormous quantity of thin yellow feces on the alighting-board, it looks as much like a diarrhea. That rare malady in the human subject once called "bronzed skin," when scientifically investigated, and traced to a degeneration of the suprarenal capsules, by Dr. Addison, was properly named Addison's disease. Chronic degeneration of the tissues of the kidneys, producing a multitude of symptoms, ending in death, is a disease that was investigated, and its true nature shown, by Dr. Bright, and very appropriately it has been termed Bright's disease. So I submit, that,

because Miss Gayton called Cheshire's attention to the bacillus that caused our "nameless bee-disease," it might with more propriety be termed Gayton's disease.

For the benefit of those who buy queens, I think that the note of warning should be sounded, and that often, against buying of any breeder who has this disease in his apiary. How are the inexperienced to be protected against this danger?

Columbia, Miss., Oct. 27.

[Mr. Ford has been having a very large, not to say trying, experience with this trouble. I have had considerable correspondence with him, suggesting every thing that might in the least abate the malady. J. A. Golden, as well as Mr. Henry Alley, both felt sanguine that the salt remedy, if properly applied, would effect a cure, and at one time I was in hopes it would help him out; but if any one has tried salt faithfully, and found it wanting, I am sure Mr. Ford has. Nothing is able to stay its progress among his bees; but it should not be forgotten that the virulence of the disease is largely a matter of locality. While it was fearfully destructive—far more so than foul brood—in Mr. Ford's locality, in parts of California and other warm climates, it is as nothing in the North or colder climates. But its very insignificance in the North makes it insidious and dangerous for the South. Why? The Northern queen-breeder, I am afraid, does not always realize how dangerous a mild case of palsied or swelled bees may be when the queen of said bees is sent to the South. *No queen-breeder, at least who advertises and sells queens, should allow a case of bee-paralysis to remain in his yard one day after its discovery. The bees ought to be entirely destroyed, even though the case will apparently cure itself, which in many cases it will do in his own yard.*

It is positively settled now, that the queen can and does transmit the disease; yes, she can carry it several thousand miles, from a locality where it can do no harm, to one where it will do fearful mischief in an apiary.

Mr. Ford suggests the inappropriateness of "Bee Paralysis" as designating this peculiar disease. It is far better than "nameless bee-disease," and, in some of the symptoms, paralysis seems to cover it fairly. I should question the wisdom of trying to change the name after the hard time we had in trying to introduce its present name. It was suggested by Prof. Cook, and was by us and others subsequently adopted. Miss Gayton did not first call attention to the disease. We had it in our apiary as early as 1877, and this was long before Cheshire knew much about bees.

Dr. Howard, the one who wrote that admirable work on foul brood, and a scientist of no mean order, and a microscopist, is about to turn his attention to it. I shall await his investigations with interest.—ED.]

ILLINOIS STATISTICS.

REPORT FOR SEPTEMBER AND OCTOBER OF THE MEMBERS OF THE ILLINOIS STATE BEE-KEEPERS' ASSOCIATION, SO FAR AS HEARD FROM TO DATE.

The answers given correspond to the following questions by number:

1. How many colonies have you?
2. What are the prospects for a honey crop?

3. How much honey gathered to date?

4. Is the honey gathered No. 1 or not?

Thos. B. Allen, Stirrup Grove, Ill. 1. 31; 2. No white clover; not good; 3. About 36 lbs.; 4. Not very good.

A. B. Anthony, Coleta, Ill. 1. 26; 2. All right for next year; 3. 300 lbs. comb, 400 lbs. extracted; 4. No. 1.

F. X. Arnold, Deer Plain, Ill. 1. 102; 2. The crop is over; 3. About 3300; 4. $\frac{1}{2}$ honey-dew, the remainder from fall flowers.

C. M. Beall, Clayton, Ill. 1. 8; 2. Enough to winter on; 3. None.

Peter Blunier, Roanoke, Ill. 1. 52; 2. With me the season is past; 3. No surplus; about enough to winter on; 4. Rather dark.

Jas. Bertrand, Bristol, Ill. 1. 12; 2. Fair for next year; 3. 180 lbs.; average 15 lbs. per colony; 4. No. 1; amber, mostly sweet clover and alsike.

M. Bevier, Bradford, Ill. 1. 40; 2. Very poor; 3. Total 90 lbs.; 4. Dark.

S. N. Black, Clayton, Ill. 1. 30; 2. Bees will require feed for winter; 3. No honey gathered.

C. Covell, Buda, Ill. 1. 35; 2. Fair, as the red clover furnished honey this season; 3. Nearly 1500 lbs. surplus; 4. Very good; amber, being basswood and red clover mixed.

Dadant & Son, Hamilton, Ill. 1. 350; 2. None; 3. None; 4. Have not harvested enough to make up for feed that we have to give.

Peter Dahl, Granville, Ill. 1. 135; 2. None; 3. 300 or 400 lbs.; 4. No. 1.

P. J. England, Fancy Prairie, Ill. 1. 28; 2. Bees adding slowly to their stores; 3. 600 lbs. extracted; 4. A shade below No. 1.

J. D. Everett, Oak Park, Ill. 1. 30; 2. Good; 3. 900 lbs.; 4. Yes.

E. T. Flanagan, Belleville, Ill. 1. 250; 2. None; all over now; 3. 2500; 4. No. 1 fall.

J. M. Hambaugh, Spring, Ill. 1. 120; 2. Honey crop all in for this year; 3. Will be in the region of 7500 lbs.; 4. $\frac{1}{2}$ poor; balance fair; no gilt edge.

B. W. Hayck, Quincy, Ill. 1. 97; 2. Fall season so far, Sept. 27, good; 3. 2500 lbs., expect 1000 lbs. more; 4. No. 1, amber.

Wm. Little, Marissa, Ill. 1. 60; 2. Season past; 3. 600 lbs.; 4. Have abundant stores to winter on.

Dr. C. C. Miller, Marengo, Ill. 1. About 200; 2. Nix; 3. 20; 4. No.

Adam Phelps, Springfield, Ill. 1. 10; 2. None at all; 3. None; 4. Answered above.

Geo. Poindexter, Kenney, Ill. 1. 73; 2. About $\frac{1}{4}$; 3. 250 lbs. heartsease; 4. No. 1.

Jas. Poindexter, Bloomington, Ill. 1. 160; 2. All vanished; 3. No surplus; enough by strong colonies to winter on; 4. No. 1; heartsease mostly.

Daniel E. Robbins, Payson, Ill. 1. 30; 2. None; 3. 225 lbs. basswood; 4. Very nice, as I left the honey-dew in the hives.

Geo. F. Robbins, Mechanicsburg, Ill. 1. 64; 2. Rather late to prospect; 3. Get out! 4. What! the only complete failure I have ever known in my 12 years of bee-keeping.

F. A. Snell, Milledgeville, Ill. 1. 112; 2. Honey-flow over; 3. 1500 lbs.; 4. Very good.

P. E. Vandenberg, Jerseyville, Ill. 1. 37; 2. Very poor; 3. About 100 lbs. extracted; 4. No, not what I call No. 1.

Walter M. VanMeter, Era, Tex. 1. 7; 2. Prospects light; 3. 50 lbs.; 4. Honey very good.

F. C. Vibert, Hockanum, Conn. 1. 7; 2. Poor; reasons given in July report; 3. 28 lbs.; 4. No. 1.

E. Whittlesey, Pecatonica, Ill. 1. 70; 2. The season is past; 3. 100 lbs. all told; 4. Third grade.

Bradfordton, Ill., Oct. 26.

YELLOW BEES TOO TENDER.

I have given a fair test, side by side with my dark Italians, and I am well satisfied that they are too tender for our climate, latitude 42. They may be all right farther south.

Allen, Mich., May 19.

C. H. AUSTIN.



HALF-DEPTH FRAMES FOR EXTRACTING.

Question.—I worked two colonies of bees the past season, for extracted honey, using the full-depth Langstroth frame in the upper stories. These frames were filled half full of light honey and half with dark honey, the light being in the upper part of each frame and the dark in the lower part. What I wish to know is, if I were to use half-depth frames could I secure the light honey in the upper set and the dark in the lower ones? If so, it would save mixing the honey when extracting, as was the case the past season, for I could not extract the light honey without having the dark all mixed with it.

Answer.—I very much doubt your ever having an experience again similar to the one outlined above, as seasons vary so much. Indeed, I hardly see how you could have had such a result this year; for in all my experience I never saw a whole set of frames that were evenly half filled with white and dark honey. It is no rare occurrence to have one or two frames filled so that, practically speaking, they would be half filled with white honey and half with dark; but to have the whole upper story thus filled is something that does not happen more than once in a lifetime. Half-depth frames are recommended by some of our most practical bee-keepers for upper stories for extracting; but I never heard any claim as coming from them that the light and dark honey could be kept separate by using such frames. Some years we have a large yield of white honey with little if any dark honey; other years just the reverse of this is the case; hence it will be seen that the supposition hinted at by the questioner could not possibly come to pass in such years; for when white honey was abundant the bees would use nearly all the room furnished, in storing white honey, finishing out the very bottom parts of the combs with dark. When there was a light yield of white honey with a good yield of dark, just the reverse would be the case; namely, there would be a small quantity of white honey in the upper part of the upper half-depth frames, while the rest of said frames would be filled with dark honey, and all of the lower ones. The only way that I know of to avoid mixed honey is, to either extract all of the white honey as soon as the white-honey harvest is over, putting back the frames of comb for the bees to use during the dark-honey flow, or take away the frames of white honey at the end of the white-honey flow, and substitute other frames in their places. Where one has the time that can be spared for extracting in the summer, the for-

mer is the preferable plan, as it requires a less investment in frames of comb, together with less storage room and handling of frames; but where time is of great value during the summer months, and of little value at other times, it may pay to adopt the latter plan. In either case the white honey should be left on the hive as long as possible, taking it off just as the dark honey is beginning to appear, so that it may be as thoroughly ripened as possible without being mixed with the dark.

WINTERING BEES WHERE SNOW DRIFTS.

Question.—We have twenty colonies of bees in chaff hives which stand where the snow drifts badly. Would it do to put them in a room during winter? or could we fix a shelter over them where they are, moving them together under this shelter? or could we set up a shelter in front of each hive and let the snow drift over hive, shelter, and all?

Answer.—If the room spoken of in the first question is an underground room or cellar, then I should say move the bees into this cellar during winter, providing an even temperature of from 42 to 48° could be maintained; for I have the best of success in wintering bees in my beecellar, and in this the temperature stands at from 43 to 45°. A part of my bees are in chaff hives and a part in single-walled hives, and I find that the chaff hives winter fully as well in the cellar as do the others. The only disadvantage chaff hives have for cellar wintering lies in their extra weight and the room they take up in the cellar; but these disadvantages are more than overcome by the advantage they possess during the cool and cold weather coming in the fall before they are set in the cellar, and in the spring after they are set on their stands. A spring wheelbarrow overcomes the difficulty of carrying chaff hives, while the packing of one hive on top of the other to the ceiling of the cellar overcomes the lack of room, in a measure.

If the room spoken of is to be a room above ground, with no special provision made so the temperature can be controlled at about 45°, then I should say try almost any other way of wintering than in a room with an ungovernable temperature; for where the temperature in any room goes below the freezing-point, and remains thus for weeks, and during a warm spell rises to 50° or more, bees are almost sure to perish before spring arrives. Moving the bees together under a shelter might answer, providing they can have a chance to fly during warm days in winter; still, there is much work to this process, and, worse still, many bees are liable to be lost or become badly mixed up when the hives are placed back where they are wanted during the summer, after having been thus wintered. The plan of having a shelter over the entrance of each hive, and letting shelter and hive drift over, I have tried several times; but with me it is not a success. Several of our

best apiarists claim that this plan is a success with them, and advise the wintering of bees in this way; but I have yet to see the colony of bees, over which the snow has been drifted three months, that has not become uneasy, gone to breeding, contracted the diarrhea, and exhausted its vitality to an extent sufficient to cause a bad case of spring dwindling, or a loss of the colony altogether. After a process of time the bees seem to become too warm, break the cluster, commence brood-rearing to replace the bees dying of exhausted vitality, run to the entrance, and fan there as in summer, the commotion thawing the snow all about the hive till a cat or small dog could run all around the lower part of the hive, this causing them to consume their stores of honey and pollen very rapidly, which consumption brings on diarrhea and death, unless the bees have a chance to fly about the time brood-rearing commences, and even then the colony is so weakened that it is of little use the following season. Where the snow stays about the hives only a few weeks at a time, it will do no particular harm; but otherwise I would advise carrying the bees to some higher ground, where the snow does not drift, or else fix an underground cellar to winter in.



COAL TAR FOR MAKING FEEDERS TIGHT.

Dr. Miller, in *Stray Straws*, wishes to know what is best to make water-tight the inside corners of feeders. Well, doctor, try coal-tar boiled down a half, and poured in hot. If that doesn't do it, I will send you a lump of our adobe mud, which is warranted to stick.

Oakland, Cal., Oct. 22.

P. L. NORTON.

GALVANIZED-IRON UTENSILS ALL RIGHT FOR HONEY AND OTHER PURPOSES.

You ask about the experience of those using galvanized iron. I have used buckets, also cans, that would hold 20 gallons. I have two water-buckets that have been in use 15 years. When new the water tastes slightly of the zinc. The utensils are very handy about sorghum-making. I left some partly boiled juice in a bucket a few days. It fermented, and ate the zinc off from the inside. So you see it will not do to leave acid in it.

J. P. MOREY.

Neosho, Kan.

HOW MUCH GAIN IS THERE IN USING SEPARATORS?

Dr. C. C. Miller would be a good man to answer this, as I am using the same T super he is, but without separators, as I find my sections are spread out the full thickness of the sections, making 1¼ lbs. in some. My T supers are made to hold just 24 sections without separators; and

if I use separators I shall have to make a change as much wider as five separators are.

W. L. RICHMOND.

Lexington, Ky., Aug. 7, 1894.

[I submitted the matter to Dr. Miller, who replies:]

You yourself mention one of the best reasons for having separators—with them your sections will be more nearly uniform in weight. If you pack for shipping, separators give you sections that will fit anywhere. Most markets prefer sections under a pound. My supers are probably the same size as yours. I now use $1\frac{3}{8}$ sections with separators, a $\frac{3}{8}$ -inch follower, and a stick $\frac{3}{4} \times \frac{1}{4}$ to wedge up with. I think you would like it.

C. C. M.

COCOONS IN A CELL; THE THICKENING AT THE BOTTOM.

In the August 1st issue you say that you never saw more than from 4 to 6 cocoons in a cell. I presume that is about all that can be found at the sides; but I should like to know what the solid body found in the bottoms of the cells is if not an accumulation of these cocoons. I inclose a sample from old comb one inch thick.

O. H. TOWNSEND.

Alamo, Mich., Aug. 13.

[The extra thickening at the bottom of the cells is partly made up of cast-off larva-skins, and dried food covered up by the skins, if I am correct.—ED.]

GERMAN, OR BELGIAN, HARES.

These differ from the common English rabbits, having tough skins and erect long ears. Their meat is white, and of a nutty flavor, and preferred by many to chicken. Their color is a silver gray. They are easily raised in hutches about three feet square, and, in fact, do well in confinement. They thrive well in summer on almost any green feed, such as clover, dandelion, dock, lettuce, beet-tops, turnip, cabbage, etc. They will fatten on stale bread, crackers, and all kinds of grain. Their principal feed in winter is clover hay. They breed every six weeks, having from seven to eleven at a litter. One doe and one buck will produce more pounds of meat in one season than one ewe, allowing her to have twins. Bee-keepers as well as others can do well raising them for market, as they sell readily in the game season.

G. J. FLANSBURGH.

South Bethlehem, N. Y.

THE ENLARGED REPORT OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

Having seen various versions in connection with the last report of the Ontario Bee-keepers' Association, permit me to state the facts of the case in justice to all. A number were dissatisfied about the meager report of the association. Compared with the government report of other organizations it was a reflection, and gave the impression that the bee-keeping industry was a very small affair. Mr. S. T. Pet-

tit, Belmont, Ontario, took care to compare the size with that of other associations, and intended to bring the matter before the association, insisting upon arrangements in that direction. Mr. Pettit, after careful reflection, thought he would mention his plans to others, and secure their coöperation, to avoid unpleasantness of any kind. This gentleman, instead of allowing Mr. Pettit to carry out the work which he had taken in hand, took advantage of the first opportunity and made the necessary proposition without giving Mr. Pettit any credit. In justice to all, kindly make the correction, and give credit where credit is due.

Brantford, Ont.

R. F. HOLTERMANN.

WHEREIN THE CHIEF VALUE OF FOUNDATION LIES.

As the use and kind of foundation is up for discussion. I will give my view of it. My theory is, that the *chief* value of foundation does not lie in the fact that it saves the bees the expenditure necessary to produce the amount of wax in foundation, but in the fact that it furnishes *all* hands with *standing-room to work into comb the wax scales already present* in abundance. If as many bees could work in building the *septum*, where no foundation is given, as can work in building the *side-walls* where foundation is given, the advantage of using full sheets of foundation would, in an average honey-flow, be very largely reduced. But as, at the very start, only a few bees can work at the septum, compared with the number that can go to work at once on the side walls, where full sheets of foundation are used, the advantage of such full sheets ought to be apparent.

JOHN S. CALLBREATH.

Rock Rift, N. Y.

A CORRECTION.

In my article on foul brood, Oct. 15, I notice some errors, two of which call for correction. On p. 789, second column, the compositor makes me say that at Dresden some very old well-preserved honey had been found in the *eaves* of an old house, while I wrote "in the *caves*." In the same column, on p. 790, the same man lets the Swiss apiculturists say to themselves, "If the formic acid is powerful enough to kill the ferment of the *bee*, would it not?" etc., while I wrote "of the *beer*." CHAS. NORMAN.

St. Petersburg, Fla., Oct. 26.

[We are as glad to make these corrections as we are sorry the mistakes occurred. As we never heard of a *cave* to a house, we thought it must be *eaves*. Doubtless, if we could cut off the tail end of beer, or convert it to an *s*, the country would be better off. In next issue we give the first of three articles from Mr. Norman, and we shall do our utmost to have the wording correct. Sometimes a type breaks on the press, and thus changes the meaning. Some time ago a paper informed us that the Russian general Rakinoffsky was "found dead with a long word in his throat." The pressman had made *word* of *sword* by battering down the *s*.—ED.]



ON account of having a large amount of matter left over from last issue, I find it necessary to omit my own Bicycle Notes in this number.

THE editors of the other bee-journals are having considerable sport at A. I. R.'s expense over what he saw at the St. Joseph museum. That is all right. May be he will have a chance to get even at some future convention.

MANAGEMENT VS. LOCATION.

It was decided at the St. Joseph convention that there is more in management than in races of bees or location. Obviously, bee-journals can not improve location. They may do a little in the way of betterment of races; but they can do very much in suggesting new and better management; hence no bee-keeper who keeps even but few colonies can afford to be without at least one good bee-journal.

A CORRECTION.

ON page 846 of our last issue, about half way down the first column, there is a line that reads, "has the hardihood to *comment on* such a thing." It should read, "has the hardihood to *commend* such a thing." I did not mean, dear friends, to brag about my courage, you see. By referring to my manuscript I find I wrote *comment* very plainly, and the printers concluded I had omitted the word *on*, and supplied it themselves.

A. I. R.

BRO. YORK is getting up quite a reputation as a punster; but he is quite independent, and at the same time is quite willing to let other people have their own preferences. Here is what he has to say on the editorial *we* and *I*:

Editor E. R. Root says in GLEANINGS: "Since I have discarded that editorial 'we,' somehow I feel more natural." Now, the "we" seems more "natural" to us. How funny it would be to use the "editorial I" in the *American Bee Journal*! "I" is sometimes egotistical, but "we" isn't. Now, there's a fine sentence—"I is" and "we isn't." But it's correct. Guess we'll stick to "we"—but let the "I's" have it, if they want it.

FOUL BROOD IN WAX.

IN the *Review* for October 10, R. L. Taylor discusses the question as to whether foul brood can be transmitted through wax. He is confident that, if the wax be heated to a temperature of 212 degrees, all germs will be killed; but the trouble is, wax is melted and refined at a much lower degree of heat than that, and hence it may preserve its objectionable features. This season he made some foundation out of wax that was foul-broody last year, and put it into two hives on the 20th and 25th of July respectively. The colonies were examined frequently, but no sign of foul brood was found

till the 8th of Oct., when one single cell of apparently foul-broody matter was found in each. If it does prove to be the real foul brood, it will disprove all theories to the contrary. In one hive the disease diminished greatly, without assistance; and Mr. Taylor is not sure but bees may recover from it unaided.

A NOTE TO QUEEN-BREEDERS.

I WOULD call the special attention of queen-breeders to the article of T. S. Ford, in this number. It seems to me that all sensible and reliable queen-breeders will agree with the sentiment expressed in *italic*, in the footnote. Indeed, I should like to see a show of hands of those who will agree to destroy the first case of bee-paralysis that appears in their yard—hive, bees, and all, as soon as it is discovered. We will publish a short announcement of every one of you, to that effect; and if you can conscientiously say that you have never had bee-paralysis in your yard, say that also. If you really do not know what it is, while you are fortunate in never having had it you are laboring under the disadvantage of not knowing just exactly what it is, should it ever come.

IRREGULAR ADVERTISING.

THERE has been a good deal written in regard to advertising, but I think there is one point which has not as yet been fully emphasized; viz., that the advertiser must not be disappointed, nor blame any one, if he gets no return from one insertion of an advertisement, especially if he is a new man. We will say that Mr. A, for instance, orders one insertion of an advertisement, offering queens. He is a new man, and is apt to expect that, within four or five days after the appearance of his card, he will get a large number of responses; but he forgets that Mr. B., a well-known queen-breeder, offers queens just as cheap, just as good, and is known to be reliable. It is the most natural thing in the world for bee-keepers to buy of those who are well known. I do not mean to discourage one-insertion advertisements, but usually they do not pay unless some special inducement is offered in the way of extra quality, extra low price, or something novel, that everybody wants to see and get. But even then a plurality of insertions is far more liable to get better returns for the money invested.

WHY LARGE COLONIES; HAVE WE BEEN SHUTTING OUR EYES TO FACTS?

I CAN'T help believing that the Dadants are right in their advocacy of large colonies, and that such colonies, as a general rule, will secure the most honey, will swarm but little, and require little if any feeding in the fall. But I don't think it necessarily follows that such a colony shall be all in one large hive, or, speaking more exactly, in one large single chamber, and on frames large enough to reach clear to the bottom and across said chamber. So far as I

can remember now, the large-colony bee-keepers are more liable to get the honey, if there is any, than their neighbors with their small colonies. Witness, for example, the Dadants, the Frances, the Axtells, Elwood, Hetherington, Hoffman—large and successful bee-keepers, all with large colonies, but not all of them having those colonies in large single chambers. The Frances, besides their "shot-tower" hives, use three eight-frame Langstroth bodies for a colony. The senior France prefers the latter, because he can handle 'em in sections. Well, we often hear of the small-colony bee-keepers getting little or no honey; but do we hear of the other class being so often unfortunate? I tell you, brethren, *if* these are facts we are fools if we shut our eyes to 'em. I have read hundreds of reports that I haven't room to publish; I have visited many apiaries, as you know, over the country; I have watched the reports in other journals, and I have seen the better work of large colonies in our own yard, and I can't dodge the issue.

THE FIVE-BANDED STOCK AND ITS ORIGIN; IS THE TIDE TURNING AGAINST IT?

EDITOR QUIGLEY, in the *Progressive*, says that five-banded bees can not be produced from pure Italian queens; that the so-called five-banders come from a mixture of Cyprian and Italian blood, and then adds:

This craze for yellow bees is ruining our industry, and the sooner it is stopped the better. We have been asked, "Who is to blame?" We say queen-breeders are, because they wanted to outdo their competitors by selling beautiful bees with more good qualities than their less colored sisters; but the more color, the more worthless they prove to be. Many of the breeders advertising five-banded bees have not a half-dozen colonies in their yard; and one breeder we know had but one colony, and shipped bees from the South each spring to commence with.

Mr. Doolittle and Mr. L. Hearn, I believe, both claim that their bees were bred from pure Italian stock. The question may arise, How do they *know* this to be true? I do not mean to say that it is *not* true; but I simply raise the point, that a very little Cyprian blood in Italian stock may be apparent, and the bees would pass for pure Italians. Mr. Doolittle especially, it is to be assumed, would not make this mistake, and yet there is a possibility of it. At all events, the tide now seems to be turning rather against the five-banders. Too many of this stock have proved to be vicious, lacking in hardness for winter, and are no better for honey-gathering than ordinary Italians. Incidentally, it may be remarked that these yellow bees were condemned at the St. Joseph convention.

It is true, some of them have shown their ability to gather honey; but individual colonies of almost any race of bees may be picked out that will be far ahead of the stocks around them.

THE DADANTS ON THE FOUNDATION QUESTION.

As will be seen from the following, I wrote to the Messrs. Dadant, asking for their opinion on the Taylor Experiments, knowing that they had studied the question years ago very thoroughly. Here is what C. P. says:

Friend Ernest:—It is with some reluctance that I respond to your request for my opinion on the Taylor experiments in favor of Given foundation, for I dislike any thing that looks like ax-grinding. The remarks that we had made on the Taylor experiment coincided with yours, and my father had called my attention to the fact that Taylor's tests agreed with tests made by us long ago; that is to say, that, the heavier the foundation furnished to the bees, the more readily they fill it with honey. This is very natural. The bees are always in a hurry when the crop is good, and they find it much handier to stretch out the cells which contain a great surplus of wax than to wait on the wax secretions of the wax-builders to finish up the rudiments of cells already begun. But one result, that we all know, of this fact, is, that the combs thus built contain too much wax to be pleasant to eat. But if we owe the heavier honey-combs to the heavier foundation, does it follow that we should use heavy foundation for surplus honey? and does not the better quality of the comb honey produced on light foundation make up for the less weight? Undoubtedly, if lighter combs are produced, more of them will be filled, and this will also make up for the difference.

The idea of friend Taylor, that the difference in the filling of the combs is due to the difference in quality of the wax, is not admissible. Aside from the fact that the samples on which he experimented came from experienced men, who surely know as well as he does how to render wax, the fact that the greatest difference exists among the combs built on Given foundation is sufficient to show that it is to the irregularity in the amount of wax in those sheets, and to nothing else, that the differences are due. It is evident, from this also, that the Given foundation is the least regular of all the grades tested.

Why is it so irregular? Because, instead of being rolled, it is pressed, and none of the imperfections of the sheet are laminated out. When the first praises of the Given press were published, we secured samples, and wrote over and over again to the manufacturer. Never did we see a full-size sample that could be called fair. The lubricant used, whatever it be, must of necessity remain on the sheet, and is an objection. The sheets made are always brittle, and, unless used at once, can not be handled without breaking. The shipping of this foundation, without its being more or less broken, is out of the question. When it was first invented, the press was lauded to the skies by Heddon and others; but they did not use it long. Why? They said it was because they could not get the foundation made right. Aye, there is the rub. An amateur can make a few pounds that will prove satisfactory; but show me the man who has made it in any large quantity and has given satisfaction. Hundreds of Given presses have been sold; and to-day, in spite of the praise the Given foundation has received, you can count its friends on your fingers.

C. P. DADANT.

Hamilton, Ill.

It seems that C. P. quite agrees with what I say on page 799, on the same question.



THE NORTH AMERICAN BEE-KEEPERS' CONVENTION.

St. Joseph (of about 50,000 population) is not only a "city set on a hill," but on a succession of hills. It is a very clean, beautiful city; but many of the hills are so steep that, even though the streets are nicely paved, it is pretty hard work to run a wheel up some of them. President Abbott, true to his promise, gave us a very fine large hall. The attendance was not quite what we expected, especially of Missouri bee-keepers, but was altogether a very pleasant and profitable gathering. How could it be otherwise, with Dr. Miller, Hutchinson, York, Holtermann, Frank Benton, Dadant, Christopher Grimm, and others, including the representative editors of six different bee-journals? Pretty much all present reported either small crops or entire failure, in consequence of the severe drought that has been so widespread and general.

A good part of the first day was occupied in remodeling the constitution, a work that has long needed attention. A full report of the proceedings will be found in the *American Bee Journal*, and will also be furnished in pamphlet form by its editor, so I will not take space for it here. This session, like all its predecessors, has convinced me still more strongly of the great importance of keeping it up, and of making a considerable effort to attend. Even though the attendance be largely local, it is of great moment that such an organization be kept alive. At every session, matters of vast importance to the bee-keeping world are brought up and acted on, and work is done that could be done only by such a body as this. Old acquaintance was renewed, and new formed; and by meeting face to face we not only learned to understand each other better, but to mutually grow in faith, hope, and charity. I know that, in some cases, unkind feelings were swept away; and some who had been almost enemies bade each other adieu with feelings that had ripened, during those three days, into something very near to an abiding friendship. May the grace of God rest on and perfect the work that was started in St. Joseph. President Abbott proved a very efficient man, and his brief bursts of oratory, delivered in his own peculiar comic originality, will long be remembered by all who were present.

The mayor of the city, with the president of the Chamber of Commerce (who gave us the nice room free of charge), made speeches that were responded to by Dr. Miller and Mr. Holtermann; and during the evening sessions we were entertained by an address by T. B. Terry (who is employed by the State to give lectures at farmers' institutes), by various vocal and instrumental pieces from local talent; and last, but not least, the whole company were invited across the way to attend, *free of charge*, an exhibition of trained animals, including the talking seal, followed by a concert. Some of the boys indulged in a good deal of merriment because Dr. Miller, A. I. Root, and others were present at a concert in a *theater*. Well, boys, both the doctor and I would have been much better pleased had the beautiful woman who sang "sweet Marie" been attired in woman's dress, rather than in the fancy costume she chose. And the *man* who danced and kicked his heels so high, in *woman's* attire, we would have rather seen in the garb of his own sex.

We are glad, however, it was a man, and *not* a woman who came before an audience to dance a "highland fling." Had we known the whole program beforehand, we should have excused ourselves before the finishing part. To tell the truth, however, we very much dislike to encourage, by our example, a fashion already too common, of running out and in during any kind of public exercises. Since that entertainment I have been a number of days with Terry, Abbott, and others, appointed by the State of Missouri, to conduct farmers' institutes; and the prevailing fashion of going out just because you don't like what is going on at the time is certainly one that should not be encouraged.

At the Bacon House, where most of the bee-keepers stopped in order to get reduced rates, we "doubled up;" and Dr. Miller, Hutchinson, York, and myself were all assigned to one room containing two beds. We had been having considerable sport, and kept it up, not only after we were in bed, but until we *should* have been asleep; and I laughed until the tears ran down my cheeks, and until I really felt sore. Now, it is a little singular; but, to tell the truth, it is only at these conventions, once a year, that I get to really feeling like a boy again. Again and again we all declared we must go to sleep; but Dr. Miller had learned to mimic the talking seal to such perfection that, just as we were losing consciousness, his "go out" would set us going again until we made our respective beds shake.

At the close of the convention some one remarked that we had the promise of a song from Dr. Miller, and we weren't going to disband without it. At this the president, with the utmost gravity, began, in the well-remembered language of the seal-trainer of the night before. Said he:

"Gentlemen and ladies, this wonderful seal has not yet been trained to obey always right off, but he usually does if we give him a little time."

This joke was received with a burst of applause; and when some one added, "Make him say 'go out,'" the audience just roared. Friend Abbott hereupon said, "Dr. Miller, stand up and say 'go out.'" When the doctor did so, mimicking the seal to perfection, the applause and laughter brought down the house. Let me explain that the talking seal speaks only the above two words. Some of you may remember the seals Mrs. Root and I saw climbing the rocks near San Francisco, and that they barked and played like a lot of puppies. Well, when they are at play they utter a peculiar double bark that might easily be imagined to be "go out." The manager explains to his listeners that the seal has no tongue, and can not speak as distinctly as we do; then he says:

"Now, Polly, sit up and tell the people what they will all do when our entertainment is over."

Polly winks her soft human-like eyes, looks very knowing, and, *with the above preface from her keeper*, everybody hears her say very distinctly, "Go out." Of course, there is a little tricking about the talking part; but aside from this, the intelligence of the animal is really wonderful. The manager says she has been taught entirely by kindness—no punishment and no scolding. He told us he had studied seals and other animals all his life, just as we bee-keepers had studied the habits of bees. Polly had just learned to play with a rubber ball; and when we came in, her keeper said:

"Come up here, Polly, and get acquainted with these friends."

She came part way, then stretched herself out in a lazy, indifferent sort of way.

"O Polly! what makes you so lazy? Come! come clear up here to me."

Now, a seal on dry land has very little power of locomotion; but the dumpy fat creature, perhaps three or four feet long, and nearly a foot through, by a peculiar bobbing motion came a little further.

"Oh! you don't half try. Come! You can get right up here if you try."

Polly winked her eyes in a lazy sort of way, and finally rolled herself over until her head came clear up against his hand; then she looked round at the visitors, and one could easily imagine a comical sort of smile on her face, such as a child might have when he had obeyed orders in *letter* but not in *spirit*. Seals are migratory, so we were told; and the great mass of fat they accumulate in the feeding season is to last them while they swim a thousand miles or more, entirely without food.

Kansas City, of nearly 150,000 population, was an astonishment to me. I did not know a city of such business, wealth, and progress, existed anywhere in the West. I was greatly astonished at their immense stores, with their hundreds of clerks; but when I found their little cash girls, from 8 to 12 years old, were kept there the year round, and did not go to school *at all*. I felt like making a protest. If the State of Missouri does not soon have some laws, such as we have in Ohio, making the education of her children *compulsory* she will surely regret it.

Saturday morning, Oct. 13, I expressed forward my extra clothing and started on my wheel-trip that I had so long looked forward to. Just as I had got well into my second wind, while about 10 miles out in the country climbing a hill, I heard an explosion like an old musket. I was so scared I nearly fell off the wheel; but when I got steady I found my back wheel running on its wooden rim. The tire had burst, both inner and outer tube, and I was forced to walk back to the street-car line. The driver said he would have to charge an "extra nickel" for carrying my wheel into Kansas City. What an illustration of the advantages of coöperation, or combining capital and labor! A farmer would want a couple of dollars, certain, to take me and my wheel into the city. The street-cars do it, and make it pay, for only 10 cts. They told me in the city that my 22-lb. racer was too light for the stony hills of Missouri; but they thought that, with a heavier tire on the back wheel, that takes most of my weight, I might make it go.

As the new tire had better not be used until Monday I prepared to go to La Cygne, Kan., by rail. At the ticket-office in the city they said there was a train out at 5 p.m. When I arrived at the depot, however, they said Saturday night was an exception, and that no train started until 9 o'clock. Four hours to wait for a train! I just couldn't stand the thought of it. My new tire seemed all right, and I thought I would ride a little way while I studied the matter over. The farther I rode, the better I liked it. Darkness came on, and I was in a strange land on an unknown road; but after awhile the moon came up, and then I made very good time. Ernest gave me very strong cautions about riding after night in Missouri and Kansas, where robbers and highwaymen were common; but I kept on. In the first place, my money was about all spent; my watch was only a Waterbury, and "Jesse James" or one of the "Dalton gang" would be sure to hand it back, saying, "Poor fellow," if they should overhaul me. Furthermore, how

could anybody *catch* me unless he had a wheel too?

The worst encounter I had in my whole 25-mile ride by moonlight was a young lady, also riding a wheel. As she might be afraid of me, I said "good evening" in my most winning and assuring tones; and when she returned the salutation in a sweet, feminine, girlish voice, I breathed a long breath of relief, and very likely *she* did also.

At Olathe, Kansas, I had a grand good supper for only 15 cts. I noticed on the bill of fare, "Two eggs, cooked in any style, 5 cts." I thought this wonderfully low; but when they brought me *three* eggs for the 5 cts., instead of two, I asked the proprietor how he could be so liberal. His reply embraced a grand sermon, even though it was given in a few simple words. Here it is, so far as I can remember:

"Well, stranger, eggs are pretty low here just now, and I have always found it better in business to give a little *more* than you advertise, rather than a little *less*."

Dear friends, this number of GLEANINGS does not contain any "Homes" or any "Neighbors;" but I think the grand truth given in by that humble shopman in Olathe will do for both. "A good name is rather to be chosen than great riches."

When a man has a reputation of always doing *all* he agrees, and sometimes a little *more*, if he isn't rich he is *better off* than to be *rich*.

When I stepped off the train at La Cygne, Kan., one of the first things that attracted my attention was a boy so intoxicated that it took two other boys to hold him up. I asked them if that was the way they did things in Kansas, where, I understood, they did not have saloons. One of the three replied, "Why, you see, stranger, we are only eight miles from the Missouri line, and this young man goes over there on his wheel and gets his drink."

"But you don't mean, boys, that he came from Missouri, eight miles away, on a wheel, in *this* condition?"

"Well, he probably brought some of it along, and 'got full' after he got here. But he has learned the trade so he can run the wheel while he is pretty well 'set up.'"

If the above statement is true, it is not so bad a showing for Kansas, after all. When we can oblige a man to go eight miles for his drinks, or any other similar distance, we are greatly lessening the chances of his becoming a sot; and the incident is really a recommendation for the Kansas liquor-law, if it is true that the boys have to go over the Missouri line to get drunk. And now, then, can't our Missouri friends brace up and drive this kind of vice to some other State?

The town of La Cygne had quite a boom a few years ago, and real estate was a good deal higher than it is now. It is a splendid farming country all along the line between Kansas and Missouri; and in former years fruit has been raised in such quantities that it could hardly be disposed of. The frost last spring, however, cut off the greater part of the fruit in all this region. The damage was much greater than in Ohio, because the fruit was further along when frost came. At La Cygne, and all through Missouri, we found beautiful persimmons in great abundance. The trees hang so full they are really a sight to behold. The fruit has never been utilized very much, however, unless it is to make persimmon butter. When people want to boom the town of La Cygne they explain to you that the name is French, and that it means "a swan;" but if somebody gets mad, and wants to run the place down, he changes the translation to *goose*, go-

ing from the sublime to the ridiculous in one short "jump."

At the Sunday-school I was introduced to the superintendent, and I thought he seemed exceedingly cordial; and the young lady who led the Endeavor meeting seemed also to treat me as if I were an old acquaintance or an old friend. The superintendent finally explained matters by saying he formerly lived in York State, and for several years he assisted Mr. John H. Martin, then of Hartford, N. Y. While in friend Martin's employ he read *GLEANINGS*, and became quite well acquainted with A. I. Root. And this is to inform *Rambler* that one of his old helpers in his former home has found an abiding-place away down in La Cygne, Kan.

Monday morning I started off on my wheel for P. M. Francis, a bee-keeper who lives near Mulberry, Bates Co., Mo. Near the Kansas line I found considerable coal-mining operated by horse power. The horse was attached to a long sweep; and on the shaft, right over the horse, was a very large drum, around which a rope is coiled. This rope raises and lowers cars of coal from the mine. When the miners want to go down into the shaft, the horse goes one way; and when he pulls up a load of coal or workmen he turns around and goes the other way. By means of this cheap apparatus a great deal of coal-mining is done in this region, and, I should think, at a low rate, for I noticed shingles up by the roadside, reading, "Good coal at this mine, only 5 cts.," etc. I did not find out, however, how much was furnished for the low sum of five or six cents. Friend Francis has quite a plantation, 60 acres of apple-orchard, all kinds of stock, including thoroughbred horses, etc. When I got there the family were all away except the hired girl. Afterward a young lady called. I commenced trying to introduce myself, but she replied, "Oh! I know you, Mr. Root. I heard you talk at the Endeavor Society last evening."

I began to think that she had mistaken me for somebody else, but she explained, "Oh! I just came from La Cygne. I passed by you when you were mending your wheel, with a whole crowd of schoolchildren all around you."

It is true, I was obliged to stop about half way on my trip, to put a heavier tube in my back wheel. After that the tire stood up all right for more than 200 miles of stony, flinty, mountainous road through Missouri. Friend Francis has a foundation-mill, quite a stock of implements, and does something in the way of furnishing supplies; but, like most of the rest of the Missourians, he has done very little in the way of getting honey during the past season. Some time in the afternoon I started out again, and reached the pretty town of Archie, Cass Co., just about dusk. At the hotel I asked for water to drink and water to wash. I took a drink first, and found the water to be exceedingly hard, with a slight peculiar salty taste. I concluded that such water would not be very good to wash up with, and turned inquiringly to the boy.

"Oh! that water is all right to wash with, even if it is hard. You just try it."

I filled the basin, and took a piece of soap in my hand a little incredulously. To my great astonishment it made a beautiful suds, and removed the grease and oil on my fingers as well as any washing-fluid could have done. The water came from a well about 50 feet deep, right in the center of the town; and I was assured afterward, even by the women-folks, that this hard well water was better to wash with than the purest rain water. The mineral it contains seems to be something of the nature of borax. It really assists the soap to make the suds. The water has quite a reputation for its

medicinal virtues, and has been sent off in bottles and barrels.

After I was washed up I made inquiries in regard to the farmers' institute to be held at Harrisonville, Cass Co. (10 miles off), next day. I went to all the stores, but there were no programs up, and nobody knew anything about it. Then I went to the postoffice, with the same result. The postmaster and I looked over three weekly Harrisonville papers, but no mention was to be found of the institute. Then I hunted up the editor of the little paper published in Archie. He did not know anything about it, but said he guessed he could find out in some of his exchanges. After diligent search we found a three-line paragraph, saying that the institute would not open until next day in the afternoon. Now just a word here. Friend Abbott informed me that the State of Missouri paid out something like \$50.00 a day to the institute men and for their traveling expenses, to teach Missouri farmers better methods of farming. But there seemed to be a general indifference in regard to the whole matter. Friend Abbot gives a talk one evening at each place on apiculture. Still, but few of the bee-keepers seemed to know anything about it, and those that do know do not go.

During my trip I invited quite a number of farmers and bee-keepers to come to the institute. I was told by some of them that there were matters of more importance going on in Missouri just then than farmers' institutes. This may be true; but sad will be the affairs of any State when farming and kindred branches of agriculture are neglected. The single item of prevention of diseases of domestic animals, as it was there presented by the Missouri State Veterinarian, may be worth hundreds of dollars to almost any farmer. It is the business of these teachers to correct the superstition and nonsense that pass so current among a large part of the farming class. After I had got through my inquiries in regard to the farmers' institute I asked if there were any bee-keepers in the vicinity. The editor told me there was a man engaged quite extensively in that line right in town; and as it was a beautiful moonlight night, I walked over. Sure enough, there was an ideal apiary—at least, it looked so in the moonlight. More than a hundred hives, nicely painted, were grouped under the fruit-trees. A little girl told me her papa was out in the apiary, and she proposed to call him.

"No, no!" said I; "let me hunt him up."

Pretty soon I found some one among the hives and trees, and I commenced:

"Look here, neighbor, may be you know me better than I know you, and may be you don't. My name is Root, and I live in Ohio."

"Why, you don't mean to say that this is A. I. Root himself, right here in my apiary?"

"Yes, sir, I am A. I. Root, and no one else. But what do you know about A. I. Root, anyhow?"

I soon found that friend W. E. Leonard has been for several years a most enthusiastic reader of the *A B C* book and *GLEANINGS*. I had to go indoors and astonish the wife and family by my presence. Friend Leonard would make many of the old veterans smile just because he is now in the high tide of enthusiasm. He is just where you and I at one period of our lives stood, years ago. He has raised queens, divided his colonies, and increased until he now has toward 150 colonies right in his doorway. He has honey to sell during this season of severe drouth, but he will have to buy more sugar to feed his bees, I fear, than he will get for his honey. Never mind. When a good season comes, as it will come sooner or later,

he is going to have all his dishes right side up to catch the flow.

The apiary looked very neat and tidy by moonlight, and I praised it so much that the good wife said she almost believed I had better not come around in the morning and see it by daylight at all, for the clear light of day would reveal much rubbish and confusion that I had not seen. By the way, peach-trees seem to grow with remarkable thrift and luxuriance all along the Kansas and Missouri line. At friend Leonard's there was a large peach-tree with such wide-spreading branches that I took a tape-line and measured one of the limbs. It extended out from the trunk of the tree 20 feet and 9 inches. Doesn't this almost match the story from our California friend in another column?

What is life without a home? If some of my bachelor friends could catch such glimpses as I do of home life, with all the children as much interested as the father and mother in the bees, garden, and fruits, I do not see how they could stand it to live alone any longer. Not only were these children interested in all that interested the father and mother, but the father and mother seemed interested in all the studies and juvenile pursuits of the children. Long live the home!

Next morning I visited Lee Emerick, of Lone Tree, Cass Co., Mo. He was not intending to go to the farmers' institute, but at my urgent solicitation he did so. He lives on a hill, or high mound, such as they have in that part of Missouri. In fact, in some directions one can see away over into Kansas, for more than 40 miles, from a point right in his apiary. The ground is so high he escaped most of the frost last spring, and has secured something like two tons of honey from forty or fifty colonies. He has also the finest orchard, with trees all bending with beautiful luscious apples, that I think I ever saw in my life. When I expressed fear that it would not do for me to eat so many raw apples, he took me to a tree of rambos that were just dead ripe, and declared that anybody could eat as many rambos as he pleased, without any injury. I was thirsty, and just hungry for nice apples, after my long wheelrides, and I tried the experiment of eating nice mellow rambos to my heart's content. They did not hurt me a particle. In fact, they did not produce any effect except to make me feel well and strong.

Friend Emerick insisted on my looking at his carp-ponds. There are five large ones—one below another, besides some smaller ones on different parts of his farm. He has been building them for several years, and now he has water enough and fish enough. When I asked him if he could afford to give so much good land to be simply covered with water, he informed me that he had about 600 acres, and some of it might as well be under water as to be devoted to any other use.

Harrisonville is a very pretty Missouri county-seat; but Cass Co. ought to have furnished at least several hundred farmers who could profitably attend the institute. I am afraid, however, there were less than half a hundred. Of course, the attendance was larger during the evening sessions; but these were largely made up of the people from the town. Friend Abbott gave his inimitable poultry talk. When it was announced beforehand, I feared I should not be very much interested in hearing how to keep poultry; but Abbott's talk was a wonderful surprise. He has the knack of combining good sound sense and fun. I believe, in a larger degree than any other speaker I ever heard; and some of his sallies broke forth into some pretty bright scintillations of oratory. His talk on diseases of poultry ought to be worth large

sums of money to such a State as Missouri, where poultry cuts such a figure among their industries and commerce.

Just before going to press we extract the following from Colman's *Rural World*, Oct. 25:

Mr. Abbott's talk on "Poultry," as usual, was instructive and interesting, perhaps made more so by Mr. Abbott's eloquence. One of the greatest factors in the success of this meeting was the presence of Mr. Root, of Ohio, who is an active and energetic gentleman as florist and apiarist, and a man of vim and vigor, whose very presence inspires an audience. His lecture on agriculture as related to apiculture, and the need of advancement and progress, was received in a manner most complimentary to the speaker.

I feel all the more thankful to get the above kind notice because it comes from Dr. Ramsey, whom I have before alluded to as giving such valuable talks on the diseases of domestic animals. I think Dr. Ramsey must be a particular friend of mine, and this accounts for his extravagant words of praise. I presume the word "florist" got in because I spoke about growing crops under glass; and, if I am correct, some one complained that I scarcely mentioned bee culture at all. Friend Kellogg, from his magnificent greenhouses at Pleasant Hill, presented the institute with an enormous bouquet, perhaps the finest I ever saw in my life.

C. J. Hostetter, of East Lynn, Mo., has a windmill 25 feet across, which he uses for grinding grain. It is not put up in the air as high as it ought to be for his location; but, notwithstanding, he says it has been quite a well-paying investment. It is true, he can not grind unless the wind blows; but there are very few days when he does not do more or less grinding. He is at no expense whatever for an engineer; and with his elevators and capacious grain-bins he can leave it so as to grind alone when the wind blows; and he often finds a wind has sprung up in the night time, so that a grist is ground, ready to be taken care of, when he gets up in the morning. You may remember that grinding grain by wind power is an old hobby of mine, and I was very glad indeed to find one man who has made a success of it. Of course, the windmill must have some care. One who is inclined to neglect his machinery, leaving his mowing-machine and other tools in the fence-corners during winter, had better not invest in a windmill; but one who takes the wind as one of God's precious gifts, and likes to keep machinery in nice order, and every thing slicked up in neat trim, will certainly find wind power a very valuable thing where he has spare time on his hands.

Friend Hostetter is also something of a gardener; and one of his ventures during the past season was to raise onion-sets. He succeeded so well that he has, or had on hand when I was there, about 200 bushels. Now, I want you to listen while I tell you of a mistake he made. He had had no previous experience in raising onion-sets at all, but launched out into a crop of 200 bushels for his first venture; and from his statement I am inclined to think that he would have made a big success of it had he harvested his crop before the fall rains set in. The sets were of fair size, but many of them were green and growing. He kept waiting for the tops to die down on all of them, as they had already done on a part of them, and at this stage the rains came; and those that were matured, and hard and firm, started again and sent out new roots. When he saw what they were doing he hustled them out of the ground and spread them out on trays to dry. But they had got started on a second growth, and they seemed determined to grow in spite of him. He will, however, by a good deal of laborious sorting, and spreading them out in

the sun, to be carried in again at night, get enough good sets, probably, to pay him for his time and trouble—at least, I hope he will. By leaving them so late, a good many of them were too large; and he has 75 or 100 bushels of pickling onions. Unfortunately a great part of them are red, and the demand for pickling onions is for white.

After the above was in type we received the following from friend H., indicating that his venture has not turned out such a bad one, after all:

Mr. Root:—I have sold my red onion-sets. I have some 1200 to 1500 lbs. of Yellow Danvers sets, first-class, left, that I will deliver f. o. b. at 10 cts. per lb., provided it is not any further than Medina.

East Lynne, Mo., Nov. 9.

C. J. HOSTETLER.

At just about this crisis on my journey I discovered I should have between 50 and 60 miles a day to make to reach Lebanon, Laclede Co., by Saturday night. At the above place Mrs. Root has a brother; and the arrangement was for her to meet me at her brother's, Saturday night. Fifty miles a day would be an easy job with graveled roads such as we have in Ohio, or even good dirt roads; but as I approached the vicinity of Hickory and other counties in that neighborhood, everybody told me of the terrible hills covered with sharp flinty rocks, with roads so bad that a team could hardly get through with an empty lumber wagon. These statements did not trouble me any—at least, not much, for I rather like obstacles, especially in the way of hills, rocks, etc. They told me, also, there were great rivers without any bridges over them; but the weather was so exceedingly hot and dry that I felt sure I should be able to get across the rivers by some hook or crook. This was Wednesday night, so I had only Thursday, Friday, and Saturday, to make my destination. In spite of friend Hostetler's urgent invitation to remain with him over night, I told him I thought I would go on to friend Yoder's, of Garden City. With moonlight I should have made the trip all right; but I did not like the idea of sitting down and waiting for the moon's slow motions in coming up, so I pushed ahead in the dark. I got along very well until I nearly reached friend Yoder's, when a round stone in my path, on a side hill at that, gave me quite a tumble and some bruises. I came up on the porch just as the family were sitting down to supper. When I told them my name was Root, and that I came from Ohio, you ought to have seen them scatter around and make me welcome, with a good place at their well-filled table. Friend Yoder is also an onion-grower; but he grows Prize-takers started under glass. I think he had toward 100 bushels of onions that looked very much like the Spanish onions on the market. Said I:

"Why, friend Yoder, you could get \$1.50 a bushel for these, I verily believe."

"Oh!" replied he, "I am going to get more than that. I expect to keep them till spring, and if I have good luck I may get \$2.00 a bushel."

"Why, where did you raise plants to get these big onions? I have not seen any hot-beds or sashes."

"Why, Mr. Root, I just pulled the windows all out of my shop, and with them I grew onion-plants enough to produce this crop."

Friend Yoder has some beautiful apples, and some tremendously rich soil for gardening or for any thing else. He has also secured quite a handsome crop of honey, in spite of the general drouth. Before we retired at night he brought out the family Bible, gave me the old arm-chair, and asked me to conduct the evening devotions. I said to him laughingly, "Why,

look here, friend Yoder, you people are Mennonites and I am a Congregationalist. How do you know I shall conduct the services according to your ideas of things? Hadn't you better take the Bible, and go on in your usual way?"

"Mr. Root, it does not make a bit of difference, even if we are Mennonites. We can unite most heartily with you."

I then mentioned to him that friend Hostetler told me that my religious teachings in GLEANINGS came as near the Mennonite faith as could well be, and not be Mennonite entirely. Now, there is a comforting thought right here. I have been told this same thing by members of other denominations; and does it not indicate that, in the great essentials in all the real important part of the worship of God, we of these different denominations are not so very far apart after all? Some good brother once said at a union meeting, that, even if there were division-walls between us, the walls were so low that we could easily reach across them, and shake hands all around.

I expressed a wish to call on Mrs. H. Wagner, at Dayton, not very far distant from Garden City, and friend Yoder at once offered to go with me. We managed to strap the wheel across the back end of his buggy, so we could visit on the way. Mrs. Wagner had only recently taken entire charge of their apiary. Our good brother (her husband) was taken away by death something over a year ago. Notwithstanding this, she has secured perhaps the best crop of honey of any one for miles around. Well, this is not the first time a woman has succeeded better than any of the men-folks in getting a crop of honey. A good many of the friends in Missouri are neglecting their bees to such an extent that their apiaries are getting to be all common bees. Mrs. Wagner was very emphatic in regard to the advantage of the Italians. She told me that pretty much all the honey she had secured came from the Italian colonies, and she pointed out one hive to me of beautiful yellow Italians that had given her over 100 well-filled sections during the months of September and October. When she mentioned that these bees came from one of Trego's queens, I gave a little exclamation of surprise.

"Why, my good friend, I was afraid these very handsome yellow bees would not produce as much honey as the others."

She said that had not been her experience at all—at least, not with queens she got from Trego. Perhaps I am giving friend T. a pretty good advertisement right here; but I am always glad to find in my travels words of praise for our extensive advertisers.

Although it was thrashing-day, and everybody was exceedingly busy, and I too was in a big hurry (to tackle those flinty hills), Mrs. W. insisted on calling the children to see me. She said it had never occurred to her that A. I. Root would visit their home. All over the house and all over the place were things that came from us. The children wanted me to explain a little more about their barometer; and at parting my good friend said to me something like this:

"Mr. Root, my dear husband, when he was alive, was one of your most ardent friends and admirers. He died full of peace, and faith in the Savior you have taught us about; and, through all our joys and sorrows, through the great trials and affliction I have passed through, your little prayer has been my prayer. And I do not know how I should have gone through it all had it not been for the many answers to that little petition in my sudden and great trial—'Lord, help.'"

Can you wonder, dear friends, that my trip through Missouri was a happy one when I met

with encouraging words like the above, every now and then, on my way?



LOW-PRICED ONION SEED AND ONION SMUT.

Mr. Root:—I wish to call your attention to the dollar onion seed, and to warn you against it. You may remember I wrote you some time ago that it had given me a nice crop. Well, so I thought at the time; but it did not turn out so. I told you I had one piece that had smut in it, and laid it to the land; but it was the seed. Only one piece showed it while growing; but when we came to rake them out and pick them up, oh dear! we had to throw away bushels and bushels of great large ones that were so affected with smut that we could do nothing with them, and they are a dead loss. It will take at least \$30 in cash out of me, and I am little able to lose it. This is why we know it must be the seed. Many acres of onions are raised about us, and no one else had smut this year, or ever had it. I sold one man some of the seed, and he had it in his; but he never had it before, and has raised them for years. One field has had onions on it for the past 15 years, and it was never known before. Another had been sowed only three years, and all are affected alike. We fertilized this year, as we have years before. As no one else had smut, and we never had it before, we know it must be in the seed. We feel the loss greatly. These are hard times, and we think the man who sold you diseased seed ought to be made to stand at least a half of our loss. Will you kindly see if something can not be done to help us out in that direction?

Montague, Mass., Oct. 3. FRED C. FULLER.

[On receipt of the above I wrote friend F. that I felt certain it was not because he bought seed at a low price, for nearly all seedsmen, before the planting season was over, came down in their prices to about a dollar a pound; and although the evidence he gives seems almost conclusive, I told him we had better submit his statement to the Ohio Experiment Station before deciding where the trouble lay. I submitted the above to W. J. Green, Professor of Horticulture at the Ohio Experiment Station, and below is the reply:]

A. I. Root:—Yours of the 8th, concerning onion smut, is at hand. The probability is, that your customer is wrong in his conclusions; but there is also a possibility that smut may be carried on the seed. This matter has been pretty carefully studied at some of the stations; and those who are best able to give an opinion say that seed-onions are never affected with smut, nor are sets and transplanted onions. On the latter I have some evidence, and think that it is true that the smut never attacks transplanted onions, provided they are started in soil free from the disease. Moreover, it is believed that infection takes place only at the time of germination, and that the disease is not communicated from plant to plant after that. Now, then, if these views are correct there seems to be but little chance of the seed carrying the disease, and yet it might be done. One must stretch his imagination somewhat in order to suppose a case, however. It might chance that some smutty soil would get in the seed, or the seed might be cured in a shed where there were smutty onions; but no case that I can

suppose seems to me sufficient. I can see how the smut could get a start in a field in that manner, but it would take it several seasons to develop to dangerous proportions, for, as above stated, it does not spread from one plant to another the same season, but remains in the ground and attacks the young plants the next year just as they are germinating.

The probability is, that there was a little smut in the fields the year before, but not enough to attract attention, and last year was the first real outbreak. I repeat, that smut may be introduced with the seed; but an outbreak of the disease can be caused only by smutty soil, and the smut may be present in the soil one or two seasons before it is observed—particularly if one has had no experience with it, and is not looking for it.

A few words about remedies. There seems to be nothing known which is perfectly effectual in preventing the disease, if applied to the soil. Sulphur and sulphate of iron seem to be of some use, but are not thoroughly effectual. Transplanting is effectual, and, having tried it thoroughly, I am convinced that it adds nothing to the cost of onion-growing if one is prepared for it.

I should have been glad if it were possible to take the other side in this question, and lay the blame on the seedsman; for if any thing deserves condemnation it is the practice of sending out inferior and dirty seeds. Seeds that will not grow are bad; but weedy seeds are worse. Smut is a weed; and if any one knowingly sends out any kind of smut he ought to be published, particularly the onion smut, for it is distributed only through the grossest carelessness.

W. J. GREEN.

Wooster, O., Oct. 10.

[Perhaps I may add that we have never had onion smut on our land, and I have never yet seen a case of it, that I know of; but from what experience I have had with other similar crops, I feel sure that Prof. Green is right. In regard to dirty seeds, all we purchased at a low price was remarkably pure, clean, and nice. The reason why I express myself so decidedly is, that I expected the low-priced seed to be inferior in some respects—that is, when we first had it offered so we could sell it for a dollar; therefore I examined it very critically, and found it fully equal to that which cost nearly twice as much. Again, we sowed some of the seed twice to test its germinating qualities, and we have grown the onions on our own grounds. Furthermore, if this cheap seed produced smut in other cases, we should certainly hear more of it. Friend Fuller's report is the only one received up to date. The seed was probably furnished us by a large seed-growing firm in Chicago; but as soon as they came out with the low prices, others also offered us seed as low as theirs, or lower; therefore we purchased from different reliable seedsmen. I should like to know what onion-growers of long experience have decided in regard to this matter. Is it possible for smut to be introduced through seed?]

SEEDS FURNISHED BY THE GOVERNMENT, ETC.

Friend Root:—I noticed in GLEANINGS for Oct. 15 that you speak of two grades of Grand Rapids lettuce seed being offered for sale, and would like to have the experiment stations help decide which is the better. I have had some experience which may help a little. Last spring several packages of Grand Rapids lettuce seed were received from the Department of Agriculture, Washington; and this fall, when I began the sowing for the winter crop, not having a large quantity of the seed which I knew was

good, I sowed quite a lot of the seed from the Department, and now the crop is getting to be large enough to see what it is. I can say that, in all my experience in lettuce-growing and testing of varieties, I never saw a more good-for-nothing, worthless sort of lettuce. Not over ten per cent of it even resembles the Grand Rapids, and the ninety per cent is a sort of mongrel variety which resembles the Yellow Dock as much as any thing. The crop we have grown from this seed will be almost worthless. If Uncle Sam makes a practice of sending out such seed as this, it is no wonder the people are finding fault with the Seed Department. If the second quality of seed sold by the seedsmen is any thing like the Department seed, it would be costly seed at any price; while the seed that cost more, if as good as what Mr. Davis has sent out, would pay for itself in greenhouse work at the price you originally paid for the Grand Rapids.

By the way, I have some of the plants growing side by side with the Department seed, from seed which came from you last winter, and it is as good Grand Rapids as one could expect to grow in a greenhouse at this season of the year.

The Grand Rapids lettuce always sports a little. The half-pound of seed from which we grew about 5000 lbs. of lettuce last winter shows on an average about one poor plant to the hundred, or not any more than that.

We have a pound of new seed from you this fall, and I must look up the bill; and if it is the cheap seed I will not sow any more, but will have some of the better seed ordered, for I have just finished the first transplanting of about 3000 plants from the new seed, and that is sufficient to try it. If you would like to have the seed tested, please send some, although it will take two or three months to tell.

Wooster, O., Oct. 18. E. C. GREEN.

[I wish every agricultural and rural paper in the land would copy what Prof. Green has to say above in regard to Grand Rapids lettuce seed which the government has been sending out. I first gave the Grand Rapids lettuce seed to the world six years ago. After all this time the government has finally woke up to the fact that this lettuce seed is getting to be a staple, and thereupon it sends out such stuff as Prof. Green tested. It would be interesting to find out where this seed was purchased, and how it got into the hands of the government seed department. Can anybody help us? Are there some "Tammany Ring" transactions that need holding up to daylight in this matter of purchasing seeds for the government?]

OUR LATE-PLANTED FREEMANS.

Those planted the 10th of July, that I have told you about, were killed by frost Tuesday night, Oct. 9. After the vines had got dry, so that the substance had all gone into the potatoes so far as it would, the boys dug them and got about 40 bushels of the finest Freemans we ever raised; and they were on our rich market-garden ground, so that they had been heavily dosed with manure, and yet there was not a bit of scab or blemish, scarcely, on one of them. The potatoes came right up, and the vines grew bright and green, without any mutilation by bugs, flea-beetles, blight, or any thing of the sort. A basketful of the large ones were about the finest I ever saw. A part of the ground was where I raised those great White Pearl onions, and the other part was where strawberries were turned under. There would have been a much larger yield, but the seed was very poor, and nearly half of it failed to come up. You see, it is a pretty hard matter to keep potatoes in good order for planting (or any thing

else), until July 10th. Now, if I had good seed I believe I could make a good thing raising Freeman potatoes planted in July. Of course, I might take new potatoes, growing two crops in a season; but there is much difficulty in getting the new potatoes to sprout and secure an even stand. Sprouting them *first*, and planting only those that have started, would make a sure thing of it. These potatoes, dug this late, will, of course, keep very much better than those taken out of the ground two months or more earlier.

A PERIODICAL ON MARKET-GARDENING.

I am rejoiced to know that we have finally a periodical devoted exclusively to the interests of the market-gardener and trucker. Price \$1.00 per year. Published monthly by the Market Garden Co., Minneapolis, Minn. The single specimen copy we have received is a bright and handsome sheet, and promises to be full of items of interest to this special class of people. For years I have looked through our agricultural papers, our periodicals for florists, as well as those devoted to gardening, just to glean out what I could find here and there from practical market-gardeners, and those who raise garden-stuff by the acre for the markets of our great cities. I have been expecting, year after year, that we should find a periodical devoted entirely to this class of people. We hope it may have a generous support. We take the liberty of offering it with a club for GLEANINGS for \$1.75 for the two.



Only 2 weeks more in which to secure the 5 per cent early order discount.

FLORIDA BRANCH.

Bee-keepers in Florida will be interested in knowing that we have made arrangements with A. F. Brown, San Mateo, Fla., to keep quite a full line of bee-keepers' supplies needed in that section. We expect, soon after this number is mailed, to start the first carload. This will be followed a few weeks later by a second car. We will mail circulars, with full particulars and list of goods in stock, within a week or ten days, to all addresses we have in Florida bee-keepers.

NEVADA HONEY.

Of the carload of alfalfa honey from Reno, Nev., which had just arrived as we went to press with last issue, we have left less than 25 cases of extracted, and some over half of the comb. We are able, also, to offer extracted clover and basswood honey, if any prefer, at the same price, which was as follows: Extracted, in 60-lb. cans, 9c per lb. for single can; 8½c per lb. for a case of 2 cans, or 8c per lb. for 2 cases or more. Comb honey, less than 100 lbs., 16c; 100 lbs. or more, crated to carry safely by freight, 15c.

AUGITE STOVE-MATS AT 5 CENTS.

Since the stove-mat was introduced, a little over two years ago, it has had a wonderful sale, and no wonder; for if every one who has any thing to do on a cook-stove knew what a blessing these mats are, the sale would have been still more wonderful. No one who has used them enough to learn their advantage would think of being without. We have thought that the bottom had been reached in price several times; but it seems we were mistaken. We are sure of it this time, however. The augite mat which we have always handled is the original, and, so far as our experiments have gone, it has continued to be by far the best mat made. The asbestos used is much whiter, and superior in quality. It is hard to convince dealers, however, that it is worth

more than some imitation they could buy for a trifle less money. The manufacturer of the augmate mat has decided that he would not make an inferior mat to compete with the cheaper grades made, and that it wasn't worth his while to continue making the superior article at the present prices. We have secured the remainder of his stock, 50 gross, at a price which enables us to sell them at a price as cheap as the cheapest. We guarantee they will go no lower than these prices, 5 cents each; 50c per doz.; 6 doz., \$2.70, or \$5.00 per gross. By mail, 10c each; \$1.00 per doz., postpaid.

To any of our readers who will renew in advance for GLEANINGS we will send postpaid one of these mats, if you ask for it. If you are in arrears you must pay up to January, 1895, and for one year from that date, if you would be entitled to the mat. If you secure a new subscription, and send with your renewal, paid in advance, we will send you 3 mats instead of one, and the new name will get GLEANINGS till the end of 1895. If you have your premium sent with other goods by freight or express, so we have no postage to pay, we will send 2 mats for renewal, or 6 for a new name with renewal. We want to see one or more mats go into the home of every reader of GLEANINGS, as we believe it will be a much appreciated help to the one who does the cooking. If you will also spend a little effort in introducing them to your neighbors you will be doing good work, and both will be well repaid. We could give hundreds of testimonials speaking in the highest praise of the mats, but we have already said enough. Get one and try it for yourself.

LOWER PRICES ON WIRE NETTING.

We have just made a new contract for our supply of wire netting and fencing for the coming year; and by it are able to make much lower prices than ever before. Instead of the table of prices on the inside of back cover of our catalog, the following will apply from now on till further notice. You will see by this that prices are nearly 20 per cent lower, the 2-in. No. 19, 4 ft. wide, being now only \$3.00 per roll, 150 feet long, with further discount for quantity, and other sizes in like proportion.

Size		Price 1 roll 150 ft. long, and fol'wing widths.									
Mesh	No. Wire.	12 in.	18 in.	24 in.	30 in.	36 in.	42 in.	48 in.	60 in.	72 in.	
3 in	18	\$ 68	1 01	1 35	1 69	2 03	2 36	2 70	3 38	4 05	
3 in	16	13	69	2 25	2 81	3 38	3 94	4 50	5 63	6 75	
3 in	14	1 88	2 81	3 75	4 69	5 63	6 56	7 50	9 38	11 25	
3 in	20	68	1 01	1 35	1 69	2 03	2 36	2 70	3 38	4 05	
3 in	19	75	1 13	1 50	1 88	2 25	2 63	3 00	3 75	4 50	
3 in	18	98	1 46	1 95	2 44	2 93	3 41	3 90	4 88	5 85	
3 in	17	1 35	2 03	2 70	3 38	4 05	4 73	5 40	6 75	8 10	
3 in	16	1 65	2 48	3 30	4 18	5 05	5 83	6 60	8 35	9 90	
3 in	15	2 18	3 26	4 35	5 44	6 53	7 61	8 70	10 88	13 05	
3 in	14	1 01	1 58	2 10	2 63	3 15	3 68	4 20	5 25	6 30	
3 in	13	1 35	2 03	2 70	3 38	4 05	4 73	5 40	6 75	8 10	
3 in	12	1 50	2 25	3 00	3 75	4 50	5 25	6 00	7 50	9 00	
3 in	20	1 65	2 48	3 30	4 18	5 05	5 83	6 60	8 35	9 90	
3 in	19	1 95	2 93	3 90	4 88	5 85	6 83	7 80	9 75	11 70	
3 in	18	2 33	4 49	6 55	8 61	10 68	12 74	14 80	18 13	21 95	
3 in	20	2 70	5 04	7 40	9 75	12 10	14 45	16 80	20 16	24 20	
3 in	19	3 25	6 88	10 50	14 13	17 75	21 38	25 00	29 16	34 20	

Staples for above, $\frac{3}{4}$ or 1 inch, 8 cts. per lb.

The sizes of which the price is given in *italic* figures are not kept in stock, and will have to be shipped direct from factory in Connecticut. We have in stock here most widths of 3-inch No. 18 (including 12 and 18 inch) and 2-inch No. 20, and all the widths of 2-inch No. 19.

* Any of these sizes may be shipped from here when preferred. These and other sizes will also be shipped from New York or Chicago direct, without any additional charge for cartage. In addition to these low prices we will, on lots of 200 lbs. or more, to points east of Ohio and north of Virginia, where the freight does not exceed 40c per 100 lbs., ship direct from the factory in Connecticut, and deliver the goods at your station. To points farther removed from the factory, where it would be more economical to ship from factory we will do so, and allow 40c per 100 lbs. on the freight, on shipments of 200 lbs. or more. It is only on shipments from the Connecticut factory that we can allow the freight. Shipments from New York, Chicago, or from here, will be f. o. b., and freight paid by the purchaser.

HOT-BED SASH AT LOW PRICES.

We had omitted to say earlier, that we still furnish the low-priced hot-bed sash that we sent out so extensively a year ago; and as the price of glass is still lower, we can give you a bargain on glass for immediate orders. Price of sash, one in the flat, for sample, 65 cts.; 5 in the flat, 60 cts. each; 10 in the flat, 55 cts. each. If you want screws to put them together, add 5 cts. for each sash. The holes are all bored, so you know just where the screws are to go. Glass, 8x10, just right for the above, \$2.00 per box of 90 lights; 5 boxes, \$1.90 per box; 10 boxes, \$1.80 per box. We can put up sash all ready to use, glazed and painted, in lots of 5, \$1.75 each. I would not advise shipping a less number than five; but if you take my advice you will have all your glass sash shipped in the flat. In this case they go as fourth-class freight; whereas, all complete they will have to go as first-class, and some roads rate them as double first-class.

FULLER'S GRAPE CULTURIST.

After the above book has been a standard authority on grape culture for a period of thirty years, the author, A. S. Fuller, has just put out a new revised and enlarged edition, published by the O. Judd Co. I hardly need add that the new edition is fully up to the times, both in new varieties and modes of training. No matter what system a culturist pursues it will well repay the grower to have "Fuller on the Grape." The author makes grape-growing a regular science and system, like mathematics. If you read the book once through carefully, you will know just what to do to make your vines do their best. This book and the Concord grape have, in my opinion, had very much to do with the fact that beautiful luscious grapes are now to be had all over the United States for only four or five cents pound, and sometimes very much lower. The price of the new edition is \$1.40; postpaid by mail, 1.50. We keep it constantly in stock.

TWO NEW INDUSTRIAL BOOKS.

The enterprising editors of the *Philadelphia Farm Journal* have given us two beautiful little books—the *Biggle Horse-book* and the *Biggle Berry-book*. Both are full of important hints, put in few words, and both are interspersed with pictures illustrating the subject. The berry-book especially contains a series of colored plates representing sixty strawberries, in shape, size, and color, inside and outside. The special feature of the berry-book is, that it embraces a sort of symposium of the opinions of thirty or forty prominent berry-growers of the present time. In fact, all of these writers and growers have answered a series of questions propounded by Judge Biggle, the author. These little books are not only full of information, but they are handsome enough to grace the center-table of the parlor. The price is 50 cts. each, postpaid. They are offered considerably cheaper, however, when clubbed with the *Farm Journal*. I suppose our readers are so well acquainted with this latter periodical that remark is unnecessary. During my recent travels I found the *Farm Journal* almost everywhere. People who think they can not afford one of the regular agricultural papers usually have the *Farm Journal* any way. The colored plates alone in the strawberry-book, I am told, cost over a thousand dollars.

PRICES OF POTATOES FOR NOVEMBER.

Although I would hardly dare to assume the responsibility myself, I think potatoes can be shipped, with very little danger, to any point south of here at any time during this month. Below we give prices for potatoes ordered this fall. Of course, we can not say at present what they will be when we commence shipping in the spring.

Price of Early Ohio, Early Puritan, Lee's Favorite, Rural New-Yorker, and Monroe Seedling potatoes: Peck, 35c; $\frac{1}{2}$ bushel, 60c; bushel, \$1.00; one bbl. of 11 pecks, \$2.50.

Freeman potatoes, one peck, 40c; $\frac{1}{2}$ bush., 75c; 1 bushel, \$1.25; one bbl. of 11 pecks, \$3.00.

One pound of any of above by mail, 20c; 3 lbs., 45c. Any of the above potatoes, second size, half the above prices.

I would call special attention to the second-size potatoes; and perhaps I may mention that we have purchased of T. B. Terry all the second size he raised on his farm. At the above prices, only \$1.50 for a barrel of Freeman potatoes, T. B. Terry's stock,

they are certainly a bargain. The largest of them will do nicely to bake. Perhaps it is well to mention that our stock of second size of Rural New-Yorker is always limited because they run large so invariably.

A word in regard to the Early Ohio potatoes. They are so much disposed to scab, especially on our ground, and so unsatisfactory in yield, we think of dropping them. It is true, the Freeman is not quite so early, but in every other respect we think it a much better potato; and for an *extra early* potato we have settled down on Everett's Six Weeks. Although I have not raised it very much myself, it has been making an excellent record with many of my neighbors. We have now in stock about 40 bushels, and the price will be the same as the Freemans above.

In my enumeration of potatoes, with prices, on page 776, Oct. 1, by a blunder the Monroe Seedling was omitted. We had no thought of leaving out this now considered standard potato, for it is our best medium early. The price will be the same as the Early Ohio, Puritan, Lee's Favorite, and Rural New-Yorker, as above.

THE SEED-TRADE FOR 1895.

There seems to be quite a healthy activity among seedsmen in regard to prices and quality of seeds for next year. It begins to be a settled fact that there is such a thing as cheap seeds. If they are not in the market they are certainly in the hands of the *government seed-shop*—see p. 883. Prof. Green is right in saying it would be cheaper to buy lettuce seed at \$100 a pound than to take that furnished by the government department as a gift. One might think at first glance that this is a tremendous exaggeration; but when we take into consideration the expense of the glass that covers the crop, the care required, and the value of a good crop of Grand Rapids lettuce grown under glass, he finds there is a tremendous importance attached to the kind of seed one starts with. I find Grand Rapids lettuce seed quoted in most of the seed-catalogs, and also in advance wholesale sheets. The price is low, so that it may be readily retailed at 10 cts. per ounce; and my impression is, that all the Grand Rapids lettuce seed offered by our large well-known seedsmen will prove pretty nearly true to name—perhaps not quite so good as the stock seed grown by the originator, Eugene Davis, and carefully watched, as none but the originator would be likely to watch a production of its own.

By the way, this reminds me that we are out of Ignomus tomato seed, and I do not know where to find any that is just what I want. It is pretty certain there has been quite a little sold that is not up to the original Ignomus as I first gave it to the world. I feel somewhat ashamed of myself to think I did not have enough enthusiasm in time to raise my own seed. Can any of the readers of GLEANINGS help me out in this matter?

I undertook to raise a lot of onion seed from my strain of Spanish onions bought in market; but the dry weather "sat down" on it so that I am not sure I have any good seed at all. We are commencing to test it in our greenhouses. Of course, during such a severe general drouth as we have had the past summer, there have been a good many disappointments, and very likely the seedsman has been blamed, when only the dry weather was at fault. All I can say in regard to the seeds we offer for sale is, that we are planting our own seeds—at least a great part of them—every month in the year, and we shall not try to sell to anybody else seeds that we would not plant ourselves. In fact, if there is any reason for being suspicious of any lot of seed, I make a planting of it myself before offering it for sale.

MARCH'S STRAIN OF JERSEY WAKEFIELD CABBAGE, STOCK SEED.

Friend Root:—I send you to-day 5 lbs. of the best stock seed that I have ever put on the market. I saved 5 lbs. for you when Gregory ordered every ounce of this year's crop, and 40 lbs. of my last year's yield. The 5 lbs. is all you can get this year, for I have six orders already that I can't fill. I feel safe in saying this is the best 5 lbs. of Wakefield in America. I have been 10 years working this stock. The original was from Francis Brill's Long Island stock, considered at that time to be the truest stock of Jersey Wakefield grown. At that time only 75 per cent of the heads were cone-shaped; the rest were roundish-oval, with a great many soft heads,

and over 10 per cent that made rosettes, with no sign of a head.

This seed that I send you will make every head in a thousand cone-shaped, and 99 per cent of good plants, well grown, will make solid heads. I stake my reputation as a seed-grower, on this seed.

I have 25,000 plants for next year's seedling, and I hope to have enough then to go around. This seed that I send you is from the choicest heads of a field of over two acres. The heaviest and most perfect heads were picked, and wintered under glass. It's the heaviest-heading variety of early cabbage in the world. I have been perfecting this stock for over ten years, and I defy the world to beat it. Try it and report.

H. A. MARCH.

Fidalgo, Wash., Oct. 15.

[You will notice by the above that I have failed in getting March's seed next year, with the exception of 5 lbs. of stock seed, described above. Now, as this 5 lbs. would go only a little way in supplying our customers, we have bought a supply of the best Jersey Wakefield of Francis Brill, for general purposes—that is, to furnish at prices mentioned in our catalog. But this precious seed, that friend March was kind enough to send me, we are going to give to the readers of GLEANINGS in this way: Every one of you who pays or has paid for GLEANINGS for 1895, before Jan. 1st, may have a paper of the seed free of charge. If you have paid for 1895 already, simply tell us on a postal that you want your paper of cabbage seed, according to this offer. Of course, the packets will not be very large; but they will be large enough so that you can see whether friend March has exaggerated in his account of what he has done. Remember, this seed is not for sale at any price. So long as it lasts, it will be given to our subscribers. If you want more than one packet, get some of your friends to subscribe with you. For new names we will send both of you a packet—the new subscriber, and the one who induces him to subscribe.



500 YOUNG FERRETS

Now ready to ship at only \$3.00 a pair. Price list of Bees and Ferrets free. N. A. Knapp, Rochester, Lorain Co., O.



TAKE NOTICE!

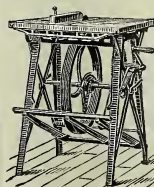
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH, New London, Wis.

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 32c for best selected wax. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 500 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw; it will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill. When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT. eliot Please mention this paper